

Crustacea Amphipoda : Lysianassoids from the tropical western South Pacific Ocean

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ABSTRACT

There are currently 20 lysianassoid amphipod species known from the tropical western South Pacific Ocean. We report on 32 species from the area, including one new genus (*Coriolisa*) and 19 new species (*Aristias thio*, *A. uokonia*, *Bathymaryllis ouvea*, *Clepidocrella tropicalis*, *Coriolisa novacaledonia*, *Cyphocaris bellona*, *Hippomedon vao*, *Kerguelenia koutoumo*, *K. lifou*, *Lepidepecreella sarcelle*, *Onesimoides abyssalis*, *Socarnes rurutu*, *S. tiendi*, *S. tuscarora*, *Socarnopsis honiara*, *S. tandai*, *Trischizostoma richeri*, *Tryphosella ama* and *T. oupi*). This brings the total species known from the area to 46.

RÉSUMÉ

Crustacea Amphipoda : Lysianassoides du Sud-Ouest Pacifique tropical.

Il est actuellement admis que 20 espèces d'amphipodes lysianassoides sont connues du Sud-Ouest Pacifique tropical. Nous traitons ici de 32 espèces trouvées dans cette région, comprenant un genre nouveau (*Coriolisa*) et 19 espèces nouvelles (*Aristias thio*, *A. uokonia*, *Bathymaryllis ouvea*, *Clepidocrella tropicalis*, *Coriolisa novacaledonia*, *Cyphocaris bellona*, *Hippomedon vao*, *Kerguelenia koutoumo*, *K. lifou*, *Lepidepecreella sarcelle*, *Onesimoides abyssalis*, *Socarnes rurutu*, *S. tiendi*, *S. tuscarora*, *Socarnopsis honiara*, *S. tandai*, *Trischizostoma richeri*, *Tryphosella ama* et *T. oupi*). Ainsi le nombre total d'espèces connues de la région est porté à 46.

INTRODUCTION

Lysianassoid amphipods have never been considered as an important part of tropical ecosystems. The large work of SCHELLENBERG (1938) on the amphipods of the tropical Pacific Ocean reported only one lysianassoid

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species, the comprehensive study of BARNARD (1970) on about 120 species of Hawaiian amphipods reported only one lysianassoid species and the monograph of MYERS (1985) on the amphipods of Fiji reported only two lysianassoid species from a total of 85 amphipod species. PIRLOT'S (1933, 1936) large accounts on amphipods from Indonesian waters reported 16 lysianassoid species. In the world monograph of BARNARD & KARAMAN (1991) lysianassoid amphipods were considered to be bipolar cold water submergents and not mentioned in the table of tropical families.

Recently LEDOYER (1986) reported 44 species of lysianassoids from the western Indian Ocean and LOWRY & STODDART (1993) recorded 22 lysianassoid species from Indonesian waters and 12 from the Philippines, significantly increasing the known diversity of both areas.

Only twenty species of lysianassoid amphipods are currently known from the tropical western South Pacific Ocean (for this study the area from the equator south to the Tropic of Capricorn and from the east coast of Australia to approximately 180°E). HASWELL (1879) described *Ichnopus tenuicornis* (as *Glycerina*), the first lysianassoid amphipod known from the Great Barrier Reef, Australia. No other lysianassoids were reported from this area until LOWRY & STODDART (1990, 1992) described *Wandin griffini* and *Ichnopus capricornus* and redescribed *I. tenuicornis*. STEBBING (1888) described *Cyclocaris tahitensis* from Tahitian waters and *Onesimoides carinatus* from the Coral Sea. SCHELLENBERG (1938) described one lysianassoid species, *Aristias tropicalis*, from the Bismarck Sea. BIRSTEIN & VINOGRADOV (1960), in their massive study of the pelagic gammaridean amphipods of the tropical Pacific Ocean, reported 22 lysianassoid species from the tropical Pacific Ocean. Seven of these species (*Bathycallisoma schellenbergi* Birstein & Vinogradov, 1958, *Cyphocaris anonyx* Boeck, 1871, *C. challengerii* Stebbing, 1888, *C. faurei* K.H. Barnard, 1916, *C. richardi* Chevreux, 1905a, *Ichnopus pelagicus* Schellenberg, 1926b and *Paracyphocaris brevicornis* Birstein & Vinogradov, 1955) occurred in pelagic waters of the western South Pacific between 152°E and 174°W and another seven species occurred just outside the area. From New Caledonia INTES (1978) reported *Eurythenes gryllus* (Lichtenstein, 1822), LEDOYER (1984) described *Parambasia acuticaudata* and LOWRY & STODDART (1992) described *Ichnopus annasona* and *I. malpatun*. REPELIN (1978), in his ecological study of the pelagic amphipods of the west and central Pacific, reported five species (also reported by BIRSTEIN & VINOGRADOV, 1960) from various localities north-east of New Caledonia (between 5°N and 20°S along 170°E) and in French Polynesia (along the equator between 135°W and 155°W and between Tahiti and the Marquesas Islands). MYERS (1985, 1986) described three species: *Parambasia nui* and *Parawaldeckia lowryi* from Fiji and *Parawaldeckia nua* from Tonga.

In this paper we report on 32 lysianassoid species from MUSORSTOM collections made in the waters around New Caledonia and the islands of Wallis and Futuna, and from Australian Museum collections made in the waters around the Austral Isles and the Solomon Islands. The total number of lysianassoid species now known from the tropical western South Pacific is 46.

It is obvious that the species list reflects collecting effort and is not a true representation of the lysianassoid fauna of the tropical western Pacific area. For instance five of the eight species from the Austral Isles are scavengers taken in baited traps, two species are pelagic predators taken in plankton tows and one species was taken among algae. There are no representatives of soft bottom dwellers (such as the pachynids), no species associated with other invertebrates (such as the aristiids), no ectoparasites (such as *Trischizostoma*) and no species of the wood-dwelling genus *Onesimoides*, so prevalent in other areas. The collection from New Caledonia is more representative of lysianassoid life-styles. Although scavenging lysianassoid genera such as *Orchomenella*, *Socarnes*, *Stephonyx*, *Tryphosella* and *Waldeckia* are represented, there has been no trapping in New Caledonian waters to give a more adequate estimate of the diversity. Invertebrate associates are represented by two species of *Aristias*, but it is reasonable to expect that some wandinid taxon is present in shallow lagoonal waters and some species of *Parawaldeckia* among reef rubble or algae. The pelagic oceanic areas studied by BIRSTEIN & VINOGRADOV (1960) and REPELIN (1978) are probably representative of the lysianassoid fauna, at least in the upper 150 m, but little is known of the abyssopelagic fauna. The only other areas from which lysianassoids are known (the Solomon, Wallis, Futuna, Fiji, Cook and Society Islands) are very poorly sampled.

On current information it is not possible to predict the species diversity of lysianassoid amphipods in the tropical western South Pacific Ocean or to compare the range of species known from there with adjacent areas such

as northern Australia or south-east Asia. However, it is becoming clear that lysianassoid amphipods are a diverse part of tropical ecosystems.

METHODS

Reports of the MUSORSTOM cruises which made these collections (including maps and station data) can be found in RICHER DE FORGES (1990, 1993). In 1991 one of us (JKL) visited the Service Mixte Contrôle Biologique des Armées (SMCB) in Tahiti and participated in a cruise on the R.V. *Marara* to the Austral Isles. Baited traps were set down to 900 m off each island in the group and in some cases in shallow water inside the lagoons. Plankton samples were collected off several islands using 1 m nets towed for 6 hours between 50 and 100 m depth. Shallow water samples of algae and sediment were taken by free diving at each island. A full report of this cruise is given in POUPIN (1991).

Taxonomic descriptions have been generated from the taxonomic data base program DELTA (DALLWITZ & PAINE, 1986). All new species names except *Clepidocrella tropicalis*, *Onesimoides abyssalis* and *Trischizostoma richeri* should be treated as nouns in apposition. Coded setal types on the mandibular palp follow the scheme presented by LOWRY & STODDART (1993). The codes used in the description of the spine-teeth on the outer plate of maxilla 1 are explained in LOWRY & STODDART (1992, 1993). Individual spine-teeth are labelled on the figures. Material is lodged in the Muséum national d'Histoire naturelle, Paris (MNHN), the Australian Museum, Sydney (AM) and the Pusat Penelitian dan Pengembangan Oseanologi, Djakarta (PPPO).

The following abbreviations are used on the plates: A, antenna; E, epistome and upper lip; EP, epimeron; G, gnathopod; H, head; MD, mandible; MDP, mandibular palp; MP, maxilliped; MPIP, maxilliped inner plate; MPOP, maxilliped outer plate; MPP, maxilliped palp; MX, maxilla; MX1IP, maxilla 1 inner plate; MX1OP, maxilla 1 outer plate; MX1P, maxilla 1 palp; P, pereopod; ST, spine-tooth; T, telson; U, uropod; UR, urosome; l, left; r, right; lat, lateral.

LIST OF RECORDED SPECIES

Marquesas Islands

Orchomenella abyssorum (Stebbing, 1888).

Tuamotu Archipelago

Eurythenes cf. *gryllus* (Lichtenstein, 1822).

Society Islands

Cyclocaris tahitensis Stebbing, 1888

Parambasia nui Myers, 1985 (reported by MYERS, 1989).

Austral Isles

Cyclocaris tahitensis Stebbing, 1888.

Eurythenes cf. *gryllus* (Lichtenstein, 1822).

Ichnopus annasona Lowry & Stoddart, 1992.

Ichnopus pelagicus Schellenberg, 1926b (reported by LOWRY & STODDART, 1992).

Orchomenella gerulicorbis (Shulenberg & Barnard, 1976).

Parambasia acuticaudata Ledoyer, 1984.

Socarnes rurutu sp. nov.

Waldeckia sp. 1.

Cook Islands

Parambasia nui Myers, 1985 (reported by MYERS, 1990).

Tonga

Parawaldeckia mua Myers, 1986.

Wallis and Futuna Islands

Eurythenes cf. *gryllus* (Lichtenstein, 1822).

Onesimoides carinatus Stebbing, 1888.

Socarnes tuscarora sp. nov.

Fiji

Parambasia nui Myers, 1985.

Parawaldeckia lowryi Myers, 1985.

New Caledonia and the Loyalty Islands

Aristias thio sp. nov.

Aristias uokonia sp. nov.

Bathymaryllis ouvea sp. nov.

Clepedecrella tropicalis sp. nov.

Coriolisa novacaledonia sp. nov.

Cyphocaris bellona sp. nov.

Eurythenes cf. *gryllus* (Lichtenstein, 1822) (reported by INTES, 1978).

Figorella tasmonica Lowry, 1984.

Hippomedon vao sp. nov.

Ichnopus annasona Lowry & Stoddart, 1992.

Ichnopus malpatun Lowry & Stoddart, 1992.

Kerguelenia koutoumo sp. nov.

Kerguelenia lifou sp. nov.

Lepidepcrella sarcelle sp. nov.

Onesimoides abyssalis sp. nov.

Orchomenella distinctus Birstein & Vinogradov, 1960.

Parambasia acuticaudata Ledoyer, 1984.

Procyphocaris indurata K.H. Barnard, 1925.

Socarnes tiendi sp. nov.

Stephonyx sp.

Trischizostoma richeri sp. nov.

Tryphosella ama sp. nov.

Tryphosella oupi sp. nov.

Chesterfield Islands

Cyphocaris bellona sp. nov.

Waldeckia sp. 2.

Coral Sea Basin

Onesimoides carinatus Stebbing, 1888.

Great Barrier Reef, Australia

Ichnopus capricornus Lowry & Stoddart, 1992.

Ichnopus tenuicornis (Haswell, 1879) (reported by LOWRY & STODDART, 1992).

Wandin griffini Lowry & Stoddart, 1990.

Solomon Islands

Socarnopsis honiara sp. nov.

Socarnopsis tandai sp. nov.

Bismarck Sea

Aristias tropicalis Schellenberg, 1938.

Central and Western South Pacific pelagics

Bathycallisoma schellenbergi Birstein & Vinogradov, 1958 (recorded by BIRSTEIN & VINOGRADOV, 1960).

Cyphocaris anonyx Boeck, 1871 (recorded by BIRSTEIN & VINOGRADOV, 1960, and REPELIN, 1978).

Cyphocaris challengeri Stebbing, 1888 (recorded by BIRSTEIN & VINOGRADOV, 1960, and REPELIN, 1978).

Cyphocaris faurei K.H. Barnard, 1916 (recorded by BIRSTEIN & VINOGRADOV, 1960, and REPELIN, 1978).

Cyphocaris richardi Chevreux, 1905a (recorded by BIRSTEIN & VINOGRADOV, 1960, and REPELIN, 1978).

Ichnopus pelagicus Schellenberg, 1926b [recorded by BIRSTEIN & VINOGRADOV, 1960 (as *Socarnes longicornis*), and REPELIN, 1978].

Paracyphocaris brevicornis Birstein & Vinogradov, 1955 (recorded by BIRSTEIN & VINOGRADOV, 1960).

SYSTEMATICS

Genus *ARISTIAS* Boeck, 1871

Aristias thio sp. nov.

Figs 1-3

MATERIAL EXAMINED. — **New Caledonia.** CALSUB : stn PL 13, 21°26'S, 166°22.7'E, east of Thio, 1567-1807 m, 4 March 1989 : 1 ♀, 14.4 mm, with non-setose oostegites (MNHN-Am 4485).

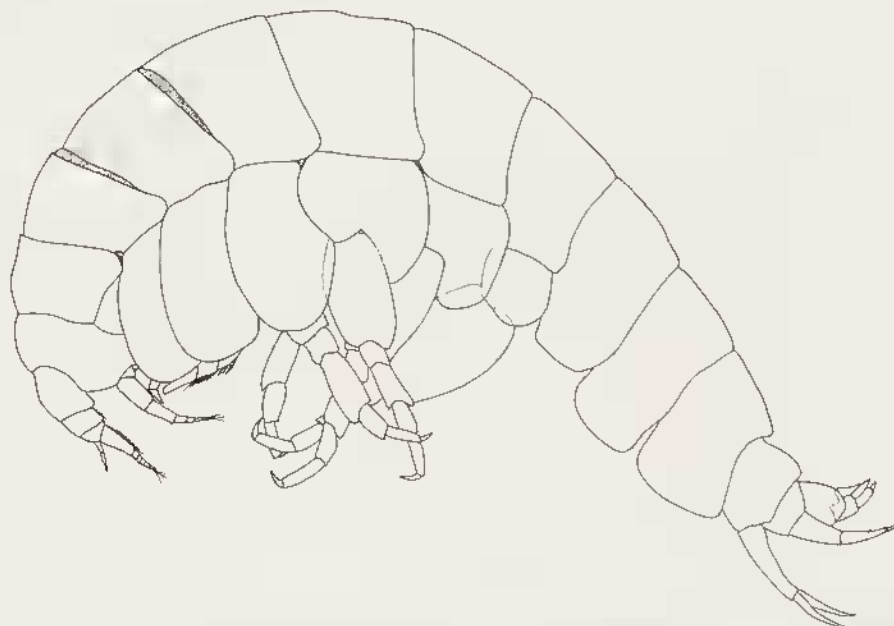


FIG. 1. — *Aristias thio* sp. nov., holotype female, 14.4 mm (MNHN-Am 4485), off Thio, New Caledonia.

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — East of Thio, New Caledonia, 21°26'S, 166°22.7'E, 1567 to 1807 m.

DIAGNOSIS. — Eyes apparently absent. Antenna 1 : accessory flagellum 3-articulate. Mandible : incisors asymmetrical, left with minutely serrate margin; left lacinia mobilis a short, smooth peg. Maxilla 1 : outer plate with 7 spine-teeth, 5 in outer row and 2 in inner row; inner plate with 6 plumose setae along inner margin. Gnathopod 1 : parachelate; coxa vestigial. Peracopods 5 and 6 : coxae strongly lobate posteriorly. Peracopods 3 to 7 : propodus without distal spurs. Epimeron 3 : posteroventral corner narrowly rounded. Uropod 3 : outer ramus with short article 2. Telson moderately cleft (49%).

DESCRIPTION. — Based on holotype female, 14.4 mm; male not known. *Head* : exposed, deeper than long; lateral cephalic lobe large, broadly rounded; rostrum absent; eyes apparently absent. *Antenna 1* : short, 0.14 times

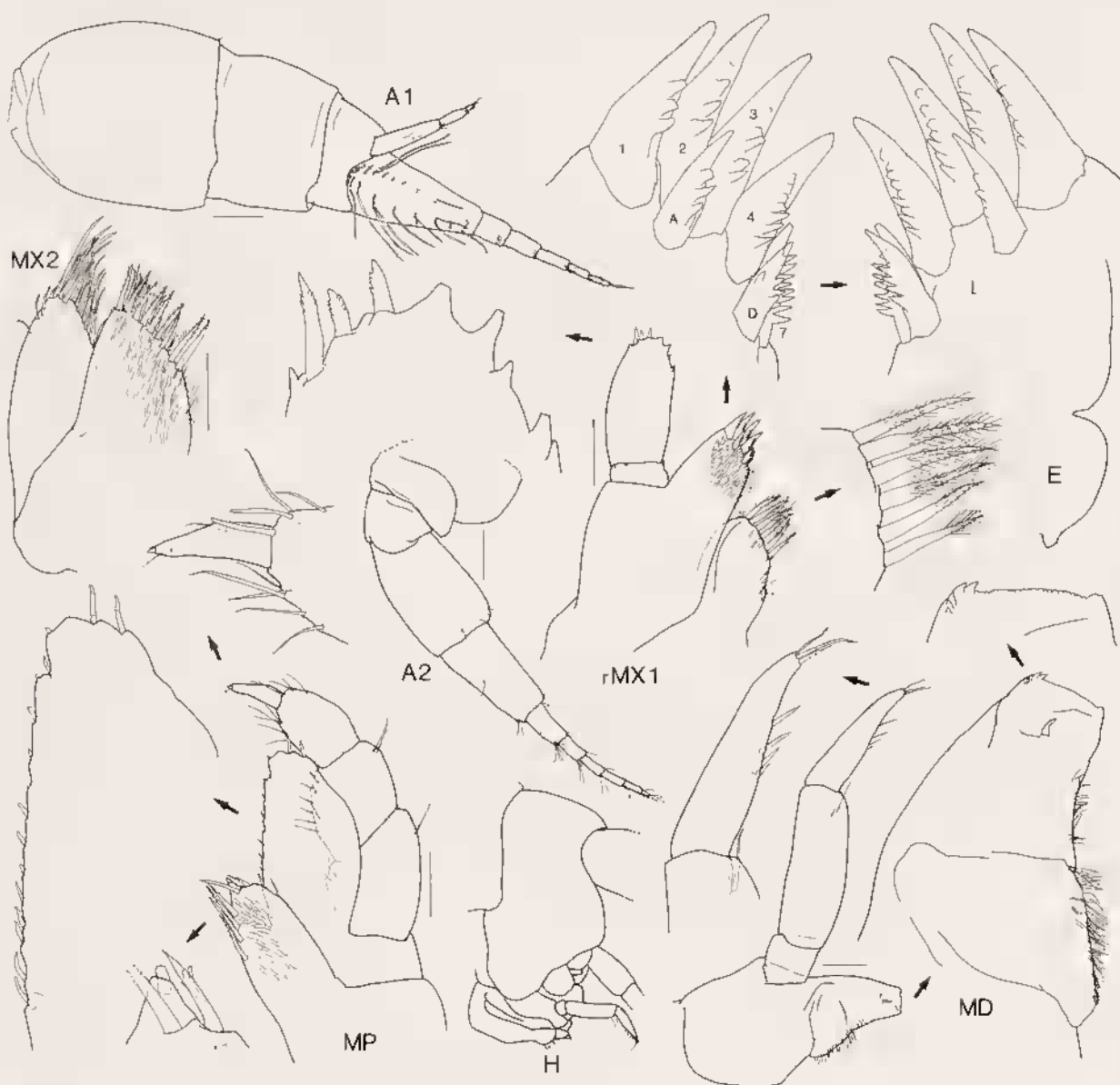


FIG. 2. — *Aristias thio* sp. nov., holotype female, 14.4 mm (MNHN-Am 4485), off Thio, New Caledonia. Scales represent 0.1 mm.

body; peduncular article 1 short, length 1.1 times breadth; peduncular article 2 long, 0.6 times article 1, without anterodistal projection; peduncular article 3 long, 0.37 times article 1; accessory flagellum medium length, 0.39 times primary flagellum, 3-articulate, article 1 long, 2.3 times article 2; flagellum 6-articulate, with weak 2-field calynophore in female without setae or spines. *Antenna 2* : slightly longer than antenna 1; weakly geniculate between peduncular articles 3-4, article 3 short, 0.43 times article 4; flagellum well developed, 6-articulate.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : fused, with central notch. *Mandible* : incisors asymmetrical, large with straight margins, left with minutely serrate margin; left lacinia mobilis present, a short smooth peg; without accessory spines or intermediate setae; molar a reduced setose flap; mandibular palp attached midway; article 1 short, length 1 times breadth; article 2 slender, length 2.6 times breadth, 1.2 times article 3, with 2 submarginal posterodistal A2-setae, without D2-setae; article 3 slender, distally truncate, long, length 4.2 times breadth, without A3-setae, with 4 proximal D3-setae and 3 apical E3-setae. *Maxilla 1* : inner plate tapering distally, at least half of inner margin setose, with 5-6 plumose setae; outer plate broad with 7 spine-teeth in two rows; outer row with ST1 to ST3 large, stout, multicuspitate, ST4 large, slender multicuspitate, ST5-ST6 absent, ST7 large, broad, 9-cuspitate; inner row with STA large, slender, 4-cuspitate, STB-STC absent, STD short, broad, 4-cuspitate; palp large, 2-articulate, with 2 long terminal spines, without subterminal setae, flag spine present, distomedial margin serrate. *Maxilla 2* : inner plate broad, outer plate narrow, inner plate 1 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 1 apical nodular spine, oblique setal row reduced, with 6 plumose setae; outer plate small, subovate, with 2 apical simple setae, without apical spines, medial spines present, small, submarginal setae absent; palp large, 4-articulate; article 2 very broad, length 1 times breadth, 1.1 times article 3; article 3 short, broad, length 1.5 times breadth; dactylus well developed, with 1 subterminal seta, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : parachelate; coxa vestigial; basis long, slender, length 2.5 times breadth, anterior margin smooth, without setae; ischium short, length 1 times breadth; merus, posterior margin with group of long simple setae and patch of short setae; carpus wedge-shaped, produced dorsally, short, length 1.5 times breadth and 1 times propodus, with patch of very fine setae near posterior margin and long simple setae along posterior margin; propodus large, subtriangular, length 1.8 times breadth, tapering distally, posterior margin serrate, convex, with 5 spines, without denticulate patch near posterior margin, palm slightly acute, with straight, minutely serrate margin, posterodistal corner with 1 medial spine; dactylus simple, with serrate posterior margin. *Gnathopod 2* : minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 2.1 times breadth; carpus long, length 3.4 times breadth, posterior margin straight; propodus subrectangular, long, length 2.6 times breadth, palm transverse, with straight, serrate margin, posterodistal corner with 1 medial and 1 lateral spines; dactylus not reaching corner of palm, posterior margin smooth.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly; propodus without minutely denticulate surface, posterodistal spur, setae or spines; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with weak posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus weakly expanded anteriorly; propodus without minutely denticulate surface, posterodistal spur, setae or spines; dactylus short, slender. *Peraeopod 5* : coxa bilobate, posterior lobe strongly produced ventrally; basis weakly expanded, posterior margin straight; merus not expanded posteriorly; propodus without minutely denticulate surface, anterodistal spur, setae or spines; dactylus short, slender. *Peraeopod 6* : coxa small, strongly lobate posteriorly; basis weakly expanded, with slightly rounded smooth margin, without anteroventral lobe; merus not expanded posteriorly; propodus without minutely denticulate surface or anterodistal spur, posterior margin without spines; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, smooth, posteroventral corner rounded, posteroventral margin straight; merus with anterior and posterior margins subparallel; propodus with minutely denticulate surface, without anterodistal spur or spines; dactylus short, slender.

Oostegites : from gnathopod 2 to peracopod 5. *Gills* : from gnathopod 2 to peracopod 6, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : dorsally smooth. *Uropod 1* : peduncle with 2 dorsolateral and 1 apicolateral spines; rami subequal in length, outer ramus with 1 lateral and 3 medial spines; inner ramus with 2 lateral spines. *Uropod 2* : with 1 apicolateral and 1 apicomедial spines, without spines along distal margin; rami subequal in length, outer ramus without spines; inner ramus with 1 lateral spine, without constriction or proximal flange.

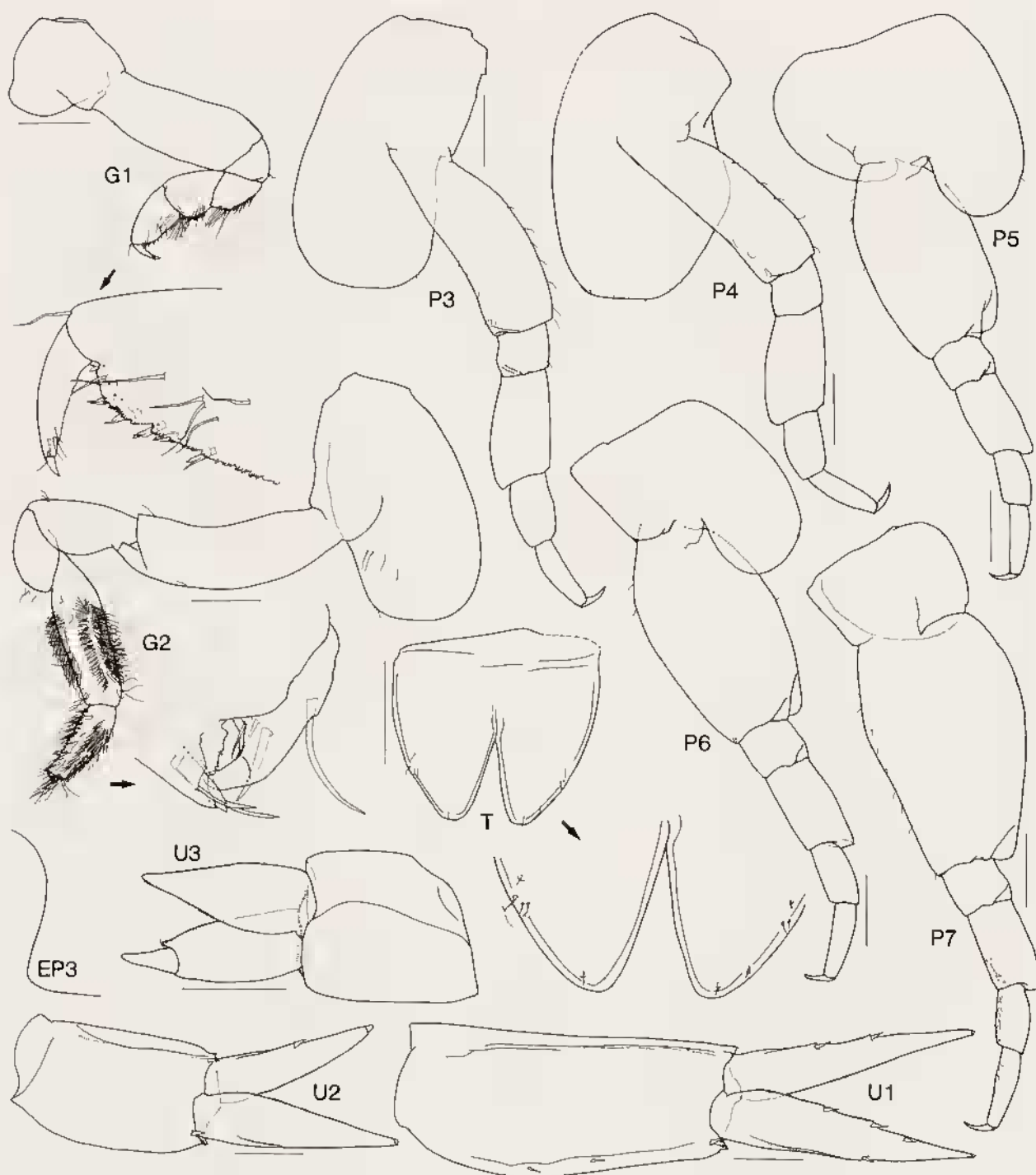


FIG. 3. — *Aristias thio* sp. nov., holotype female, 14.4 mm (MNHN-Am 4485), off Thio, New Caledonia. Scales represent 0.2 mm.

Uropod 3 : peduncle short, length 1.4 times breadth, without dorsolateral flange, without dorsal spines, midlateral spines or setae or distoventral spines; rami lanceolate, inner ramus reduced, about 0.9 times outer ramus, outer ramus 2-articulate, article 2 short, rami without spines. *Telson* : shorter than broad, length 0.85 times breadth, moderately cleft (49%), without dorsal spines or dorsal setae, distal margins rounded, without marginal penicillate setae, with 2 simple marginal setae on each lobe, without marginal spines.

ETYMOLOGY. — Named for the town of Thio, near the type locality.

REMARKS. — *Aristias thio* has no eyes, only 3 articles on the accessory flagellum of antenna 1, no distal spurs on the pereopods and the inner ramus of uropod 3 is nearly as long as the outer. *Aristias coriolis* Lowry & Stoddart, 1993, also has these character states, but it differs from *A. thio* in having more spine-teeth on the outer plate of maxilla 1, apically acute posteroventral lobes on the coxae of pereopods 5 and 6 and a more deeply cleft telson. One other species, *A. expers* J.L. Barnard, 1967, shares all of these character states, except the inner ramus of uropod 3, which just reaches the end of article 1. It differs further from *A. thio* in having a differently shaped posterior margin on the propodus of gnathopod 1, a differently shaped basis on pereopod 7 and a slightly less cleft telson.

DISTRIBUTION. — *Aristias thio* is known only from south-eastern New Caledonia in 1800 m depth.

Aristias uokonia sp. nov.

Figs 4-6

MATERIAL EXAMINED. — New Caledonia. BIOCAL : sin DW 33, 23°09.71'S, 167°10.27'E to 23°10.80'S, 167°10.45'E, south of the Isle of Pines, 675-680 m, 29 August 1985 : 1 ♀, 16.2 mm, with setose oostegites (MNHN-Am 4430).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — South of the Isle of Pines, New Caledonia, 23°09.71'S, 167°10.27'E to 23°10.80' S, 167°10.45'E, 675 to 680 m.

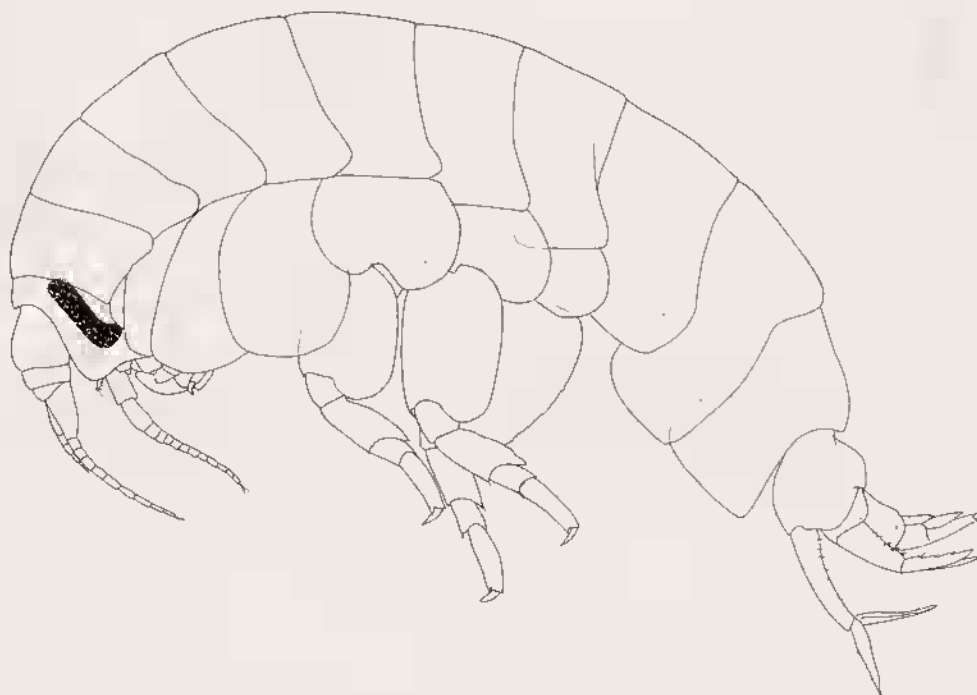


FIG. 4. — *Aristias uokonia* sp. nov., holotype female, 16.2 mm (MNHN-Am 4430), south of the Isle of Pines, New Caledonia.

DIAGNOSIS. — Eyes long, narrow, subsigmoid. Antenna 1 : accessory flagellum 6-articulate. Mandible : incisors symmetrical, with straight, smooth margins; left lacinia mobilis a small spine. Maxilla 1 : outer plate

with 13 spine-teeth, 11 in outer row and 2 in inner row; inner plate with 10 plumose setae along inner margin. Gnathopod 1 : parachelate; coxa vestigial. Peracopods 5 and 6 : coxa 5, posterior lobe weakly produced ventrally; coxa 6 strongly lobate posteriorly. Peracopods 3 to 7 : propodus with distal spurs. Epimeron 3 : posteroventral corner narrowly rounded. Uropod 3 : inner ramus shorter than article 1 of outer ramus; outer ramus with short article 2. Telson deeply cleft (72%).

DESCRIPTION. — Based on holotype female, 16.2 mm; male not known. *Head* : exposed, deeper than long; lateral cephalic lobe large, narrowly rounded; rostrum absent; eyes long, narrow, subsigmoid, brown in alcohol.

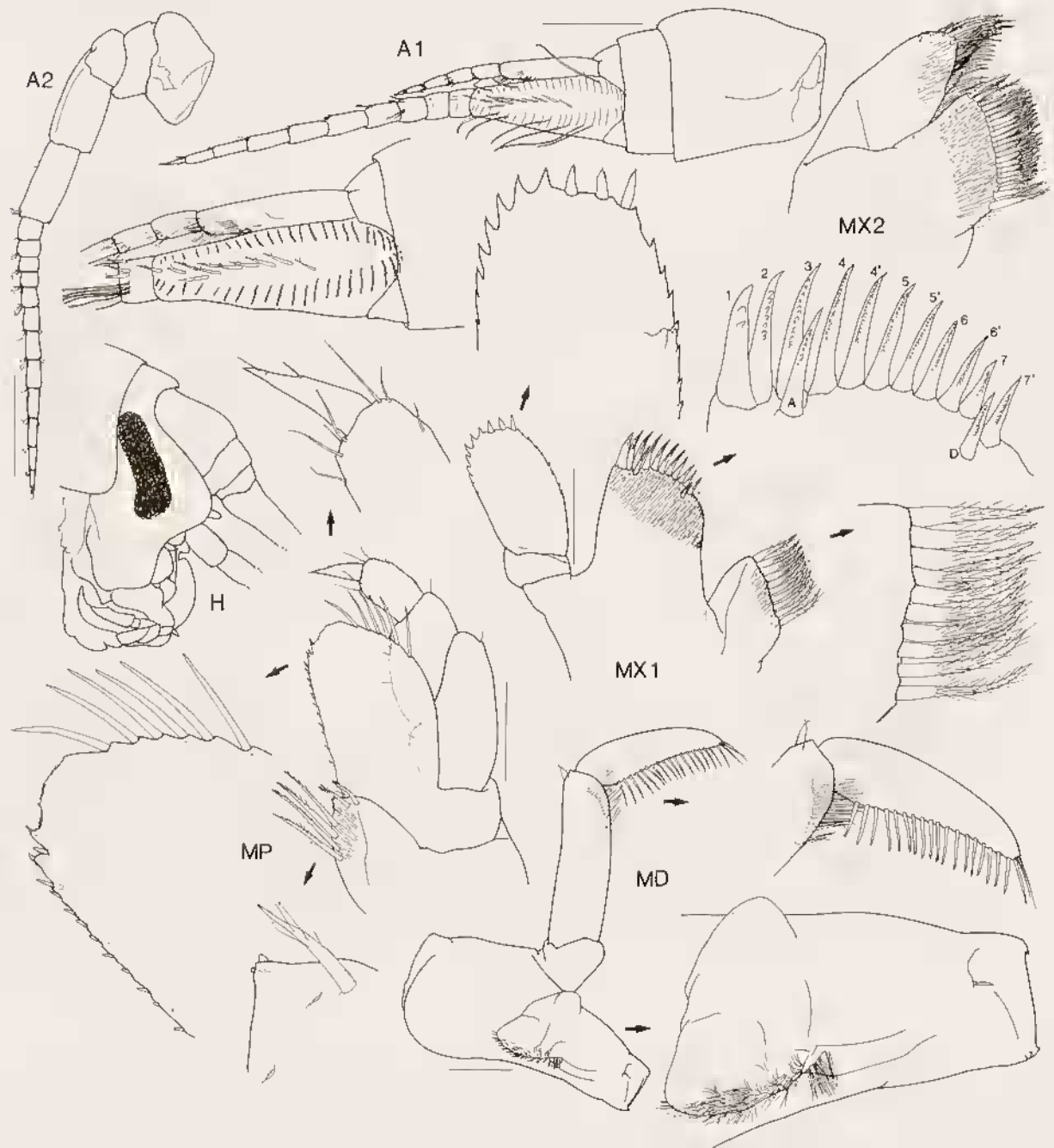


FIG. 5. — *Aristias uokonia* sp. nov., holotype female, 16.2 mm (MNHN-Am 4430), south of the Isle of Pines, New Caledonia. Scales for A1 and A2 represent 0.5 mm, remainder represent 0.2 mm.

Antenna 1 : medium length, 0.22 times body; peduncular article 1 short, length 1.2 times breadth; peduncular article 2 short, 0.25 times article 1, without anterodistal projection; peduncular article 3 long, 0.25 times article 1; accessory flagellum, medium length, 0.46 times primary flagellum, 6-articulate, article 1 long, 3.4 times article 2; flagellum 11-articulate, with strong 2-field calynophore with 11 large midmedial spines. *Antenna 2* : slightly longer than antenna 1; weakly geniculate between peduncular articles 3-4, article 3 short, 0.35 times article 4; flagellum well developed, 13-articulate.

Mouthpart bundle: subquadrate. *Epistome* and *upper lip* : fused, with central notch. *Mandible* : incisors symmetrical, large, with straight margins; left lacinia mobilis present, a small spine; without accessory spines or intermediate setae; molar a small, smooth flap with setose margins; mandibular palp attached midway; article 1 short, length 1 times breadth; article 2 slender, length 3.3 times breadth, 1.2 times article 3, with 13 submarginal posterodistal A2-setae, without D2-setae; article 3 falcate, long, length 3.5 times breadth, without A3-setae, with 19 D3-setae along most of posterior margin and 3 apical E3-setae. *Maxilla 1* : inner plate tapering distally, inner margin fully setose, 10 plumose setae; outer plate extremely broad with 13 spine-teeth in two rows; outer row with ST1 to ST3 large, slender, multicuspidate, 6 spine-teeth from ST4 to ST7 all large, slender, multicuspidate; inner row with STA large, slender, multicuspidate, STB-STC absent, STD long, slender, multicuspidate; palp large, 2-articulate, with 2 short terminal spines, without subterminal setae, flag spine present on distolateral corner, distomedial and distolateral margins serrate. *Maxilla 2* : inner plate broad, outer plate narrow, inner plate 1 times length outer plate. *Maxilliped* : inner plate small, subovate, with 2 apical nodular spines, oblique setal row strong with 6 plumose setae; outer plate medium size, subrectangular, with 6 apical simple setae, without apical spines, medial spines present, small, submarginal setae absent; palp large, 4-articulate; article 2 very broad, length 1.4 times breadth, 1.6 times article 3; article 3 short, broad, length 1.6 times breadth; dactylus well developed, with 2 subterminal setae, unguis absent.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : parachelate; coxa vestigial; basis long, slender, length 3.8 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.1 times breadth; merus, posterior margin with group of long simple setae and patch of short setae; carpus subrectangular, short, length 1.6 times breadth, longer than (1.2 times) propodus, with patch of very fine setae near posterior margin and long simple setae along posterior margin; propodus large, subtriangular, length 1.6 times breadth, tapering distally, posterior margin serrate, subtly sinusoidal, with 4 spines, without denticulate patch near posterior margin, palm transverse, margin convex, serrate, posterodistal corner with 1 medial spine; dactylus simple, without subterminal teeth or spines. *Gnathopod 2* : minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 3.1 times breadth; carpus long, length 3.7 times breadth, posterior margin straight; propodus subrectangular, long, length 2.6 times breadth, palm transverse, with concave, minutely serrate margin, posterodistal corner without spines; dactylus over-reaching corner of palm, posterior margin smooth.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly; propodus without minutely denticulate surface, with small posterodistal spur, with 3 setae and 1 distal spine along posterior margin; dactylus short, stocky. *Peraeopod 4* : coxa deeper than wide, with weak posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus weakly expanded anteriorly; propodus without minutely denticulate surface, with small posterodistal spur, with 2 setae and 1 distal spine along posterior margin; dactylus short, stocky. *Peraeopod 5* : coxa bilobate, posterior lobe slightly produced ventrally; basis expanded with posterior margin smooth; merus slightly expanded posteriorly; propodus without minutely denticulate surface, with small anterodistal spur, with 1 distal spine along anterior margin; dactylus short, stocky. *Peraeopod 6* : coxa large, strongly lobate posteriorly; basis expanded posteriorly with smooth posterior margin, without anteroventral lobe; merus slightly expanded posteriorly; propodus without minutely denticulate surface, with small anterodistal spur, with 1 distal spine along anterior margin; dactylus short, stocky. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus slightly expanded proximally with slightly rounded posterior margin with 5 spines; propodus without minutely denticulate surface, with small anterodistal spur, with 3 spines and 1 distal spine along anterior margin and 3 setae along posterior margin; dactylus short, stocky.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 6, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner narrowly rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : dorsally smooth. *Uropod 1* : peduncle with 7 dorsolateral,

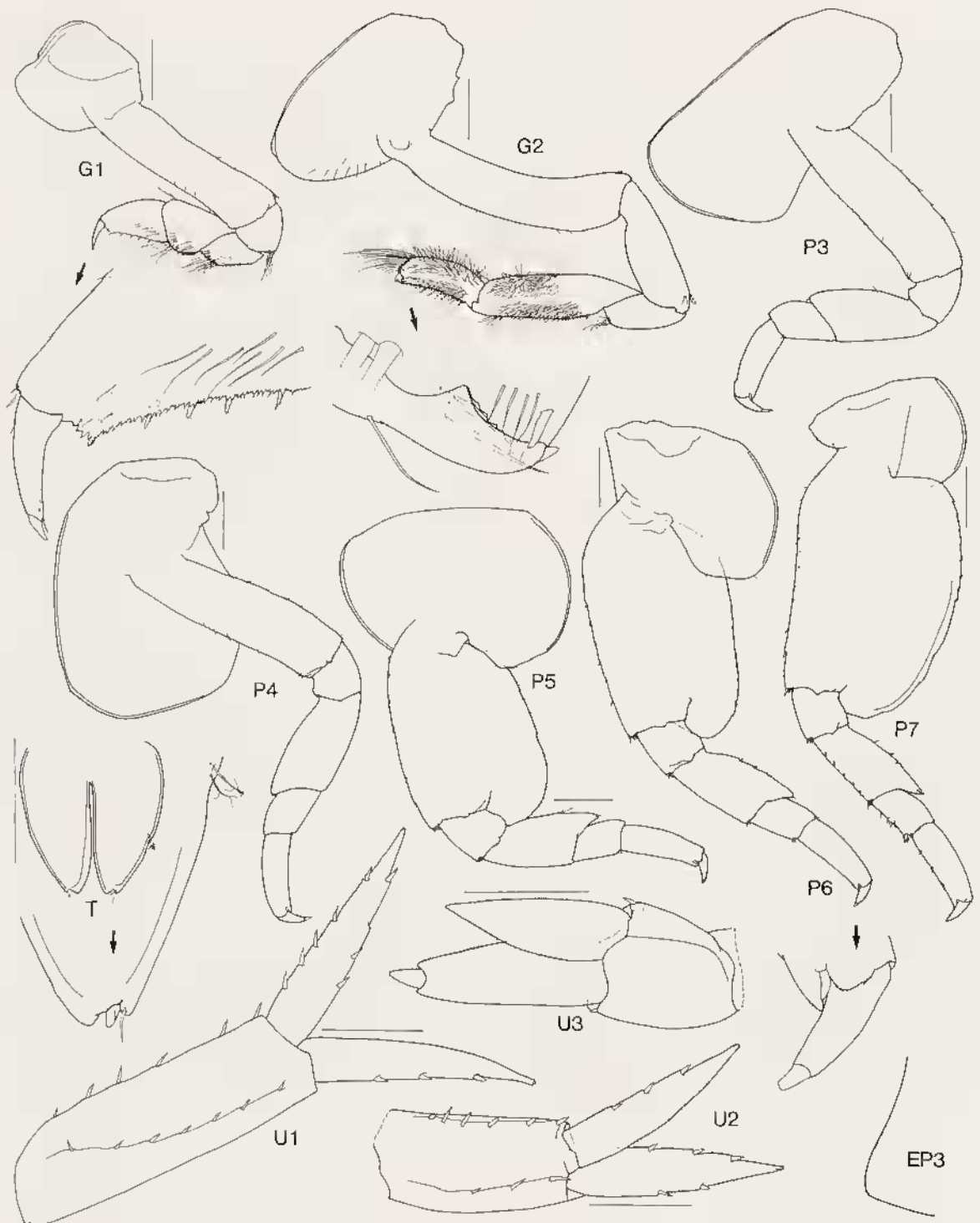


FIG. 6. — *Aristias uokonia* sp. nov., holotype female, 16.2 mm (MNHN-Am 4430), south of the Isle of Pines, New Caledonia. Scales represent 0.5 mm.

5 dorsomedial and 1 apicomedial spines; rami subequal in length, outer ramus with 3 lateral spines; inner ramus with 4 medial and 5 lateral spines. Uropod 2 : with 5 dorsolateral, 1 apicolateral, 2 dorsomedial and 1 apicomedial spines, without spines along distal margin; rami subequal in length, outer ramus with 3 lateral spines in weak

acclivities; inner ramus with 3 medial and 2 lateral spines, inner ramus without constriction or proximal flange. *Uropod 3* : peduncle short, length 1.5 times breadth, without dorsolateral flange, with 1 apicomedial spine, without midlateral spines or setae, with 1 distoventral spine; rami lanceolate, inner ramus reduced, about 0.77 times outer ramus, outer ramus 2-articulate, article 2 short, rami without spines. *Telson* : longer than broad, length 1.1 times breadth, deeply cleft (72%), without dorsal spines or dorsal setae, distal margins truncated, without marginal penicillate setae, with 1 simple marginal seta and 1 marginal spine on each lobe.

ETYMOLOGY. — Named for Point Uokonua, Isle of Pines, near the type locality.

REMARKS. — This is the first record of midmedial spines on the face of the callynophore in lysianassoid amphipods. As far as we know these spines distinguish *A. uokonua* from all other aristiids. *Aristias uokonua* has the inner ramus of uropod 3 reduced. Other species with this character state include the Pacific and Indian Ocean species *A. adrogans* J.L. Barnard, 1964a, *A. expers* J.L. Barnard, 1967, *A. stenopodus* Ledoyer, 1986, and the North Atlantic species *A. tumidus* (Krøyer, 1846). *Aristias adrogans* and *A. stenopodus* differ from *A. uokonua* in having imperfectly developed eyes or none at all. Neither *A. adrogans* nor *A. expers* has the telson as deeply cleft as *A. uokonua*, both have differently shaped posterior margins on the propodus of gnathopod 1 and *A. expers* has no spurs on the pereopods. *Aristias stenopodus* has a deeply cleft telson, but it is much wider than long and the bases of pereopods 5 to 7 are not as well developed. *Aristias tumidus* differs from *A. uokonua* in having a differently shaped eye, fewer spine-teeth on the outer plate of maxilla 1 and a better developed posteroventral lobe on coxa 5.

DISTRIBUTION. — *Aristias uokonua* is known from south of the Isle of Pines, New Caledonia, in 680 m depth.

Genus *BATHYMARYLLIS* Pirlot, 1933

Bathymaryllis ouyea sp. nov.

Figs 7-10

MATERIAL EXAMINED. — New Caledonia. BIOCAL : stn DW 44, 22°47.30'S, 167°14.30'E to 22°47.35'S, 167°14.50'E, south of the Isle of Pines, 440-450 m, 30 August 1985 : 1 ♀, 7.8 mm, ovigerous, 7 eggs (MNHN-Am 4775); 1 ♂, 7.7 mm (MNHN-Am 4776); 28 specimens (MNHN-Am 4382); 25 specimens (AM P42124). — Stn DW 46, 22°53.05'S, 167°17.08'E to 22°53.27'S, 167°17.41'E, south of the Isle of Pines, 570-610 m, 30 August 1985 : 55 specimens (MNHN-Am 4441). — Stn DW 51, 23°05.27'S, 167°44.95'E, south of the Isle of Pines, 680-700 m, 31 August 1985 : 6 specimens (MNHN-Am 4442). — Stn DW 77, 22°15.32'S, 167°15.40'E, north-west of the Isle of Pines, 440 m, 5 September 1985 : 1 ♂, 8.0 mm, 1 ♂, immature (MNHN-Am 4793). — Stn DW 104, 21°30.62'S, 166°21.26'E to 21°30.95'S, 166°21.55'E, north-east of Thio, 375-450 m, 8 September 1985 : 1 specimen (MNHN-Am 4463).

TYPES. — The female specimen (from MNHN-Am 4775) is the holotype, the other specimens are paratypes.

TYPE LOCALITY. — South of the Isle of Pines, New Caledonia, 22°47.30'S, 167°14.30'E to 22°47.35'S, 167°14.50'E, 440 to 450 m.

DIAGNOSIS. — Antenna 1 : peduncular article 2, 0.5 times as long as article 1. Antenna 2 : peduncular article 4 and 5, each 3 times as long as wide. Uropod 2 : outer ramus about 0.7 times as long as inner ramus; inner ramus with 5 medial spines and 6,1 lateral spines.

DESCRIPTION. — Based on holotype female 7.8 mm (MNHN-Am 4775); paratype male, 8.0 mm (MNHN-Am 4793). *Head* : exposed, much deeper than long, extending below insertion of antenna 2 with indentation at level of insertion; lateral cephalic lobe moderate, rounded; rostrum moderate; eyes long, oval (very faint in alcohol). *Antenna 1* : elongate, 0.38 times body; peduncular article 1 long, length 2.2 times breadth, batl-shaped proximally, without dorsal crest, with large midmedial tooth, without posterodistal tooth, without anterodistal projection; peduncular article 2 long, 0.5 times article 1, without anterodistal projection; peduncular article 3 long,

0.25 times article 1; accessory flagellum short, 0.25 times primary flagellum, 5-articulate (male 7), article 1 short, 1.5 times article 2 (male long, 2.5 times article 2); flagellum 22-articulate (male 21-articulate), without callynophore in female (strong 2-field in male); calceoli absent in female and male. *Antenna 2*: slightly longer than antenna 1; peduncle without brush setae in female (weak in male), female weakly geniculate between peduncular articles 3-4, article 3 short, 0.29 times article 4; flagellum well developed, 23-articulate (male at least 13, damaged); calceoli absent in female and male.

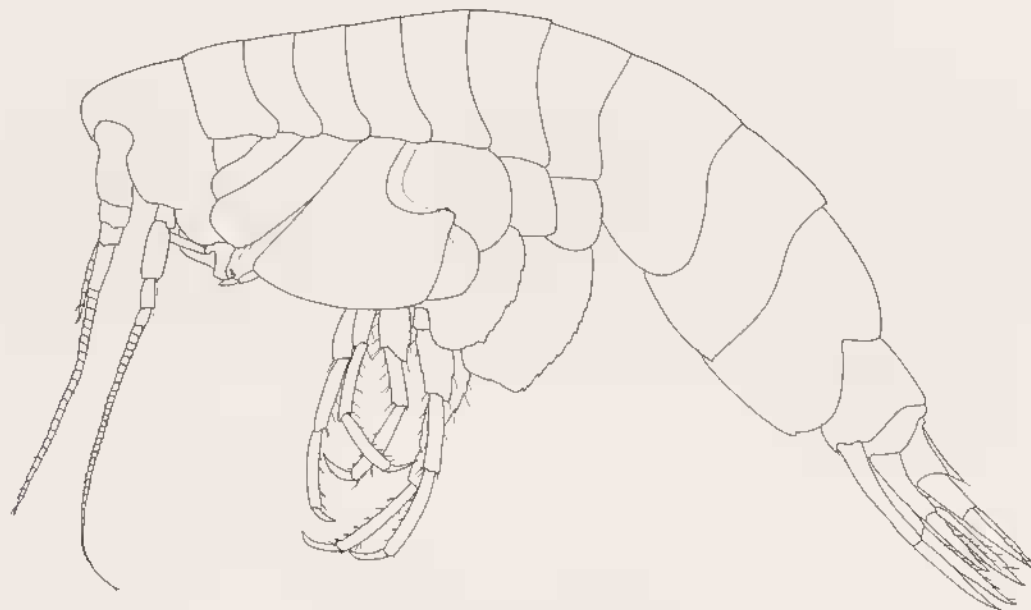


FIG. 7. — *Bathymaryllis ouvea* sp. nov., paratype male, 7.7 mm (MNHN-Am 4776), south of the Isle of Pines, New Caledonia.

Mouthpart bundle: subquadrate. *Epistome* and *upper lip*: fused, with central bulge. *Mandible*: incisors symmetrical, small, with slightly convex margins; left lacinia mobilis present, a stemmed distolaterally cusped blade; accessory spine row with large distal setal tuft, left and right rows each with 10 long, slender, serrate spines, with "whip-like" intermediate setae; molar a small, smooth flap with setose margins; mandibular palp attached midway; article 1 short, length 1.2 times breadth; article 2 slender, length 4.7 times breadth, 1.6 times article 3, without A2-setae in female (male 14 - 16), without D2-setae; article 3 tapering distally, short, length 2.8 times breadth, without proximal A3-setae in female (male 1), with 4 distal D3-setae (male 11 - 12) and 2 apical E3-setae. *Maxilla 1*: inner plate broad with 2 plumose apical setae; outer plate broad with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, weakly cuspidate, ST4 large, stout, 4-cuspidate, ST5 large, stout, 5-cuspidate, ST6 large, stout, 9-cuspidate, ST7 contiguous with ST6, large, slender, 17-cuspidate medially; inner row with STA large, slightly displaced from STB, 3-cuspidate, STB large, broad, 4-cuspidate, STC large, broad, 5-cuspidate, STD broad, smaller than STC, 4-cuspidate; palp absent. *Maxilla 2*: inner and outer plates narrow, inner plate bulging proximomedially, inner plate 1 times length outer plate. *Maxilliped*: inner plate large, subrectangular, with 3 apical vestigial nodular spines, oblique setal row reduced with 7 plumose setae; outer plate medium size, subovate, without subapical notch, without apical setae or spines, without medial spines, submarginal setae vestigial; palp large, 4-articulate; article 2 slender, length 2.5 times breadth, 1.4 times article 3; article 3 long, slender, length 2.4 times breadth; dactylus reduced, with 1 terminal and 1 subterminal seta, unguis absent.

Peraeonites: 1 to 7 dorsally smooth; peraeonite 6 without sternal hook. *Gnathopod 1*: simple; coxa vestigial; basis very long, slender, length 6.4 times breadth, anterior margin smooth, with simple setae; ischium long, length 1.7 times breadth; merus, posterior margin lined with long simple setae; carpus subrectangular, long,

length 2.6 times breadth and 1 times propodus, without denticulate patch near posterodistal margin; propodus large, subrectangular, length 2.6 times breadth, margins slightly converging distally, posterior margin serrate, straight, with 4 spines and 4 groups of setae, without disto-medial setae, without denticulate patch near posterior margin, palm absent; dactylus simple, with serrate posterior margin. *Gnathopod 2* : subchelate; coxa reduced, partially covered by coxa 3; ischium long, length 3.2 times breadth; carpus very long, length 6.2 times breadth, posterior margin straight; propodus subrectangular, long, length 2.6 times breadth, palm acute, with straight, serrate margin, posterodistal corner with 1 medial spine; dactylus reaching corner of palm, posterior margin serrate.

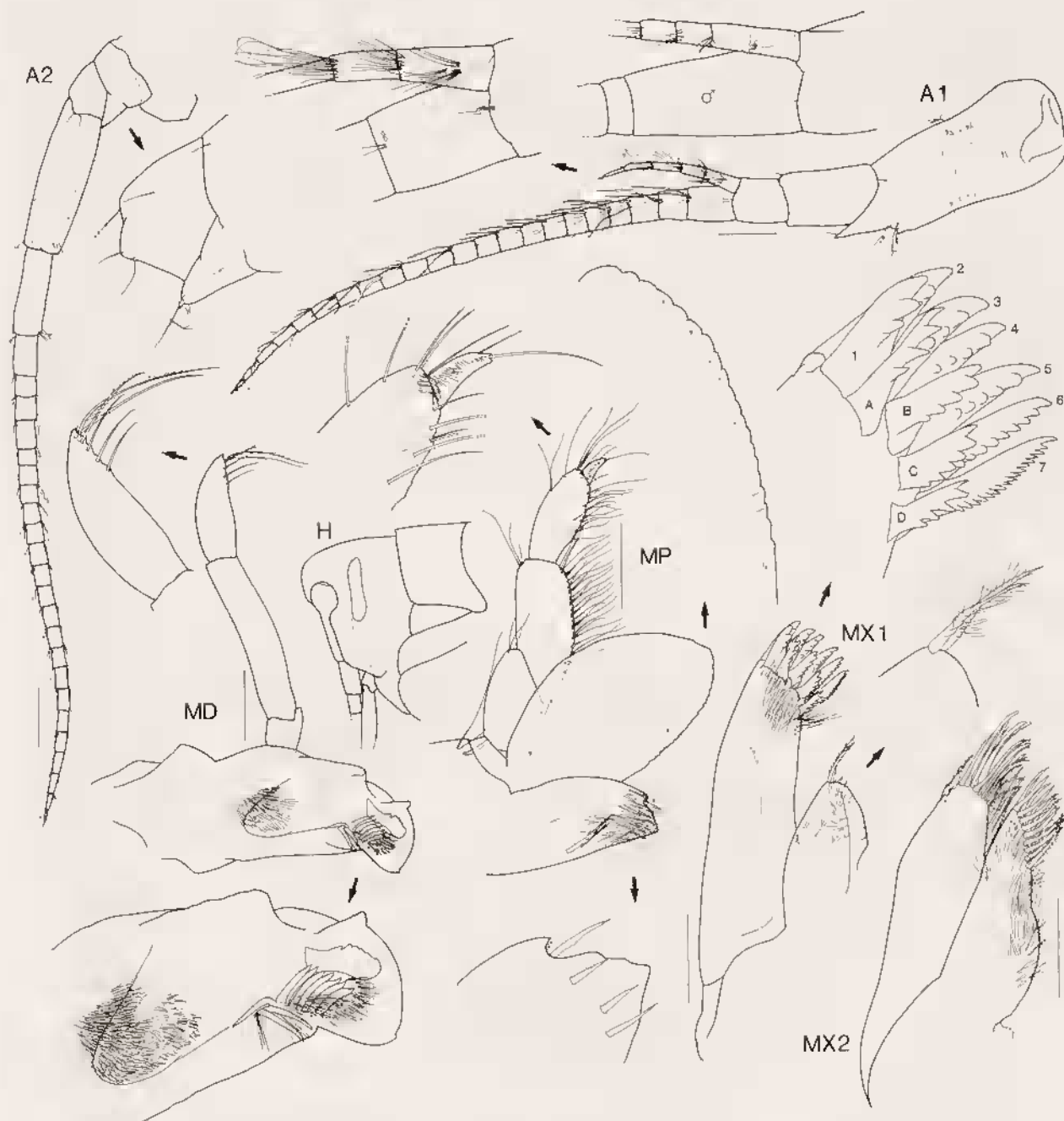


FIG. 8. — *Bathymaryllis ouvea* sp. nov., holotype female, 7.8 mm (MNHN-Am 4775); paratype immature male, 7.7 mm (MNHN-AM 4776); south of the Isle of Pines, New Caledonia. Scales represent 0.1 mm.

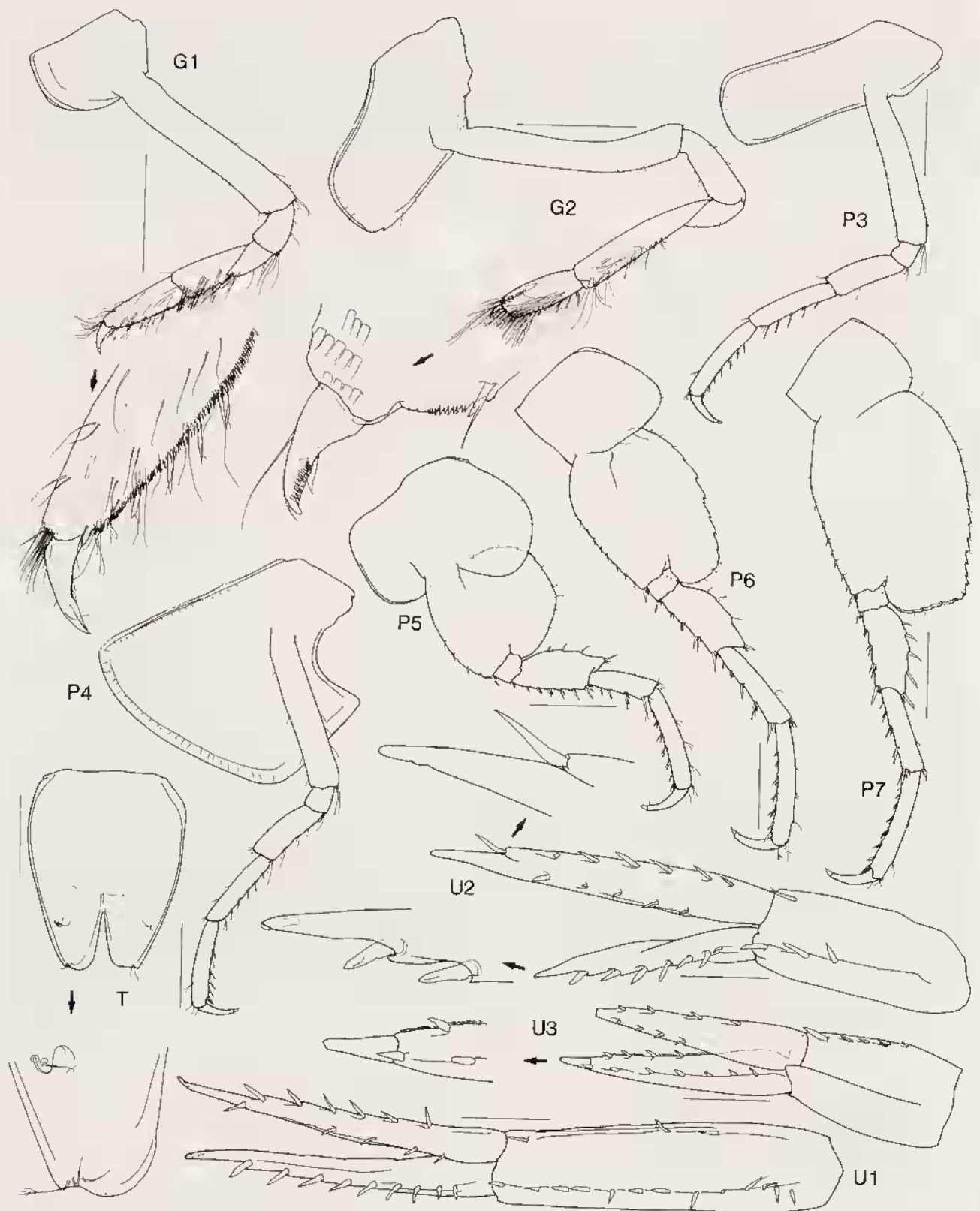


FIG. 9. — *Bathymaryllis ouvea* sp. nov., holotype female, 7.8 mm (MNHN-Am 4775), south of the Isle of Pines, New Caledonia. Scales for U1-3 represent 0.2 mm, remainder represent 0.5 mm.

Peraeopod 3 : coxa large; merus not expanded anteriorly; merus-carpus without brush of simple setae in female (dense brush present in male); propodus with 6 spines and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior and posterior margins obtusely angled; merus not expanded anteriorly; merus-carpus without brush of simple setae in female (dense brush present in male); propodus with 6 spines and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa bilobate, posterior lobe produced ventrally; basis expanded with posterior margin smooth; merus slightly expanded posteriorly; propodus with 10 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis, anterior margin rounded proximally, straight distally, basis expanded posteriorly with minutely crenate posterior margin, without anteroventral lobe; merus slightly expanded and rounded posteroproximally, straight posterodistally with 5 setae; propodus with 10 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin almost straight, minutely crenate, posteroventral corner subquadrate, posteroventral margin straight; merus slightly expanded, convex posterior margin with 6 spines; propodus with 11 spines and 2 distal spines along anterior margin and 5 setae along posterior margin; dactylus short, slender.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 7, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner rounded. *Epimeron 3* : posteroventral corner notched. *Urosomites* : dorsally smooth. *Uropod 1* : peduncle with 12 dorsolateral, 1 apicolateral, 2 dorsomedial and 1 apicomедial spines; rami subequal in length, outer ramus with 9 lateral spines; inner ramus with 5 medial and 6 lateral spines. *Uropod 2* : peduncle with 2 dorsolateral, 1 apicolateral and 1 apicomедial spines; outer ramus 0.68 times as long as inner ramus, outer ramus with 7 lateral spines, inner ramus with 5 medial and 6,1 lateral spines; inner ramus with weak constriction. *Uropod 3* : peduncle well developed, short, length 1.6 times breadth, without dorsolateral flange, with 5 dorsomedial and 1 apicomедial spines, without midlateral spines or setae, without distoventral spines; rami lanceolate, subequal in length, outer ramus 2-articulate, article 2 short, article 1 with 7 lateral and 4 medial spines; inner ramus with 4 medial and 4 lateral spines, plumose setae absent in female (present in male). *Telson* : slightly longer than broad, length 1.1 times breadth, slightly to moderately cleft (29%), distal margins rounded, with 1 marginal penicillate seta and 1-2 simple setae on each lobe, without marginal spines.

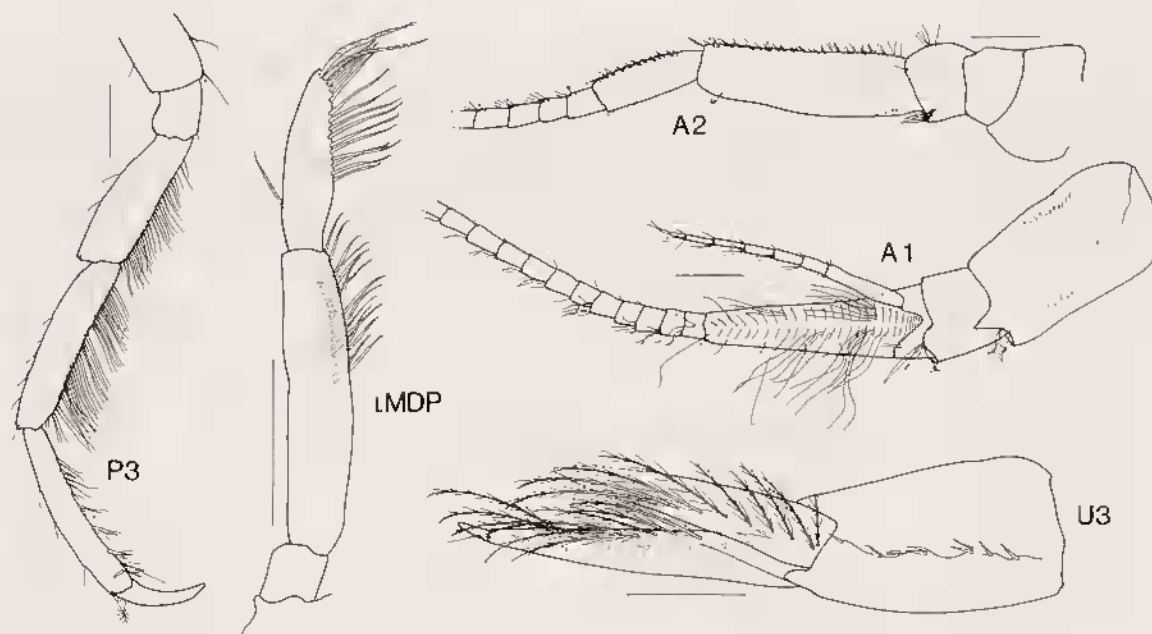


FIG. 10. — *Bathymaryllis ouvea* sp. nov., paratype male, 8.0 mm (MNHN-Am 4793), north-west of the Isle of Pines, New Caledonia. Scales represent 0.2 mm.

ETYMOLOGY. — Named for the island of Ouvéa in the Loyalty Islands.

REMARKS. — Immature males in these samples differ from adults in several ways : although the proximal articles of the antenna 1 flagellum have fused, aesthetascs have not developed; there are no setal brushes on the merus-carpus of peracopods 3 and 4; and plumose setae have not developed on the rami of uropod 3.

Bathymaryllis ouvea and *B. perezii* Pirlot, 1933, are very closely related. The most obvious difference between them is that *B. perezii* has much more slender first and second antennae in which peduncular article 2 of antenna 1 is 0.9 times as long as article 1 and peduncular articles 4 and 5 of antenna 2 are each 6 times as long as wide and the apparent lack of spines on the medial margin of the inner ramus of uropod 2. More subtle differences in *B. perezii* include the maxillipedal palp which is more slender, the palm of gnathopod 2 which is transverse and the posteroventral corner of the basis of peracopod 7 which is more rounded.

DISTRIBUTION. — *Bathymaryllis ouvea* is known from south of the Isle of Pines and the strait between New Caledonia and the Loyalty Islands, in 375 to 610 m depth.

Genus *CLEPIDECRELLA* J.L. Barnard, 1962

Clepidecrella J.L. Barnard, 1962 : 24; 1969 : 338. — BARNARD & KARAMAN, 1991 : 476.

DIAGNOSIS. — Mandible : incisor and lacinia mobilis present, accessory spine row absent, molar vestigial. Maxilla 1 : inner plate reduced, without apical setae; outer plate with reduced number of spine-teeth. Maxilliped : inner and outer plates reduced in size and spination. Gnathopod 1 : linear, simple or weakly subchelate. Peracopod 4 : coxa with very large posteroventral lobe. Peracopod 5 : basis slightly to moderately expanded. Uropod 3 : inner ramus reduced or absent.

TYPE SPECIES. — *Clepidecrella cabinda* J.L. Barnard, 1962, by original designation.

SPECIES COMPOSITION. — *Clepidecrella* contains two species : *C. cabinda* J.L. Barnard, 1962, and *C. tropicalis* sp. nov.

REMARKS. — *Clepidecrella* has most of the characters of *Kerguelenia*, particularly the reduced spine-tooth arrangement of maxilla 1; reduced inner and outer plates on the maxilliped; simple, linear gnathopod 1; very large posteroventral lobe on coxa 4; linear to moderately expanded basis on peracopod 5; and the reduced rami of uropod 3. It differs in the mandible which has a vestigial incisor and a vestigial molar. Keeping them separate, based on the mandible, indicates that gnathopod 1 and uropod 3 are homoplastic characters. Although this is not a satisfactory arrangement we are leaving the genera separate until a more complete phylogenetic assessment is available.

DISTRIBUTION. — *Clepidecrella* is known from the tropical western South Pacific Ocean and the South Atlantic Ocean, in 450 to 5000 m depth.

Clepidecrella tropicalis sp. nov.

Figs 11-13

MATERIAL EXAMINED. — New Caledonia. BIOCAL : stn DW 44, 22°47.30'S, 167°14.30'E to 22°47.35'S, 167°14.50'E, south of the Isle of Pines, 440-450 m, 30 August 1985 : 1 ♀, 5.0 mm, ovigerous, 2 eggs (MNHN-Am 4385).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — South of the Isle of Pines, New Caledonia, 22°47.30'S, 167°14.30'E to 22°47.35'S, 167°14.50'E, 440 to 450 m.

DIAGNOSIS. — Antenna 1 : flagellum 13-articulate. Antenna 2 : flagellum 9-articulate. Mandible : palp article 2 with 6 distal A2-setae. Gnathopod 1 : simple with linear carpus and propodus. Peraeopod 5 : basis moderately expanded with small posteroventral lobe. Epimeron 3 : posteroventral corner narrowly rounded. Uropod 3 : rami absent. Telson : entire, posterior margin emarginate.



FIG. 11. — *Clepidecrella tropicalis* sp. nov., holotype female, 5.0 mm (MNHN-Am 4385), south of the Isle of Pines, New Caledonia.

DESCRIPTION. — Holotype female, 5.0 mm; male not known. *Head* : exposed, slightly longer than deep; lateral cephalic lobe large, narrow, subacute; rostrum small; eyes oval. *Antenna 1* : medium length, 0.2 times body; peduncular article 1 short, length 1.3 times breadth, with dorsal crest, without tooth on distomedial margin, without anterodistal projection; peduncular article 2 short, 0.13 times article 1, without anterodistal projection; peduncular article 3 short, 0.13 times article 1; accessory flagellum short, 0.33 times primary flagellum, 3-articulate, article 1 long, 1 times article 2; flagellum 13-articulate, without callynophore. *Antenna 2* : subequal in length to antenna 1; peduncle without brush setae, female weakly geniculate between peduncular articles 3-4, article 3 long, 0.75 times article 4; flagellum well developed, 9-articulate, without thick setal brush.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : unknown. *Mandible* : incisors vestigial; left lacinia mobilis present, a small spine; molar vestigial; mandibular palp attached distally; article 1 short, length 1.3 times breadth; article 2 slender, length 6.8 times breadth, 2.3 times article 3, with 6 distal A2-setae, without D2-setae; article 3 slender, distally truncate, long, length 4 times breadth, without proximal A3-setae or D3-setae, with 2 apical E3-setae. *Maxilla 1* : inner plate narrow, without apical setae; outer plate small, narrow, with 6 spine-teeth in modified 7/4 arrangement; outer row with ST1 to ST3 small, stout, weakly cuspidate, ST4 small, stout, 3-cuspidate, ST5 absent, ST6 small, stout, 2-cuspidate, ST7 small, broad, 3- to 4-cuspidate distally; inner row with STA-STD absent; palp large, 2-articulate, with 3 short terminal spines, without subterminal setae, flag spine present on distolateral corner, distomedial margin smooth. *Maxilla 2* : inner plate narrow, outer plate broader. *Maxilliped* : inner plate small, subrectangular, with 2 apical nodular spines, oblique setal row absent; outer plate vestigial, subovate, without apical setae, apical spines or apical teeth, with 2 large distomedial spines, submarginal setae long, simple; palp large, 4-articulate; article 2 broad, length 1.6 times breadth, 0.81 times

article 3; article 3 long, slender, length 2.5 times breadth; dactylus well developed, with 1 terminal and 1 subterminal setae, unguis absent.

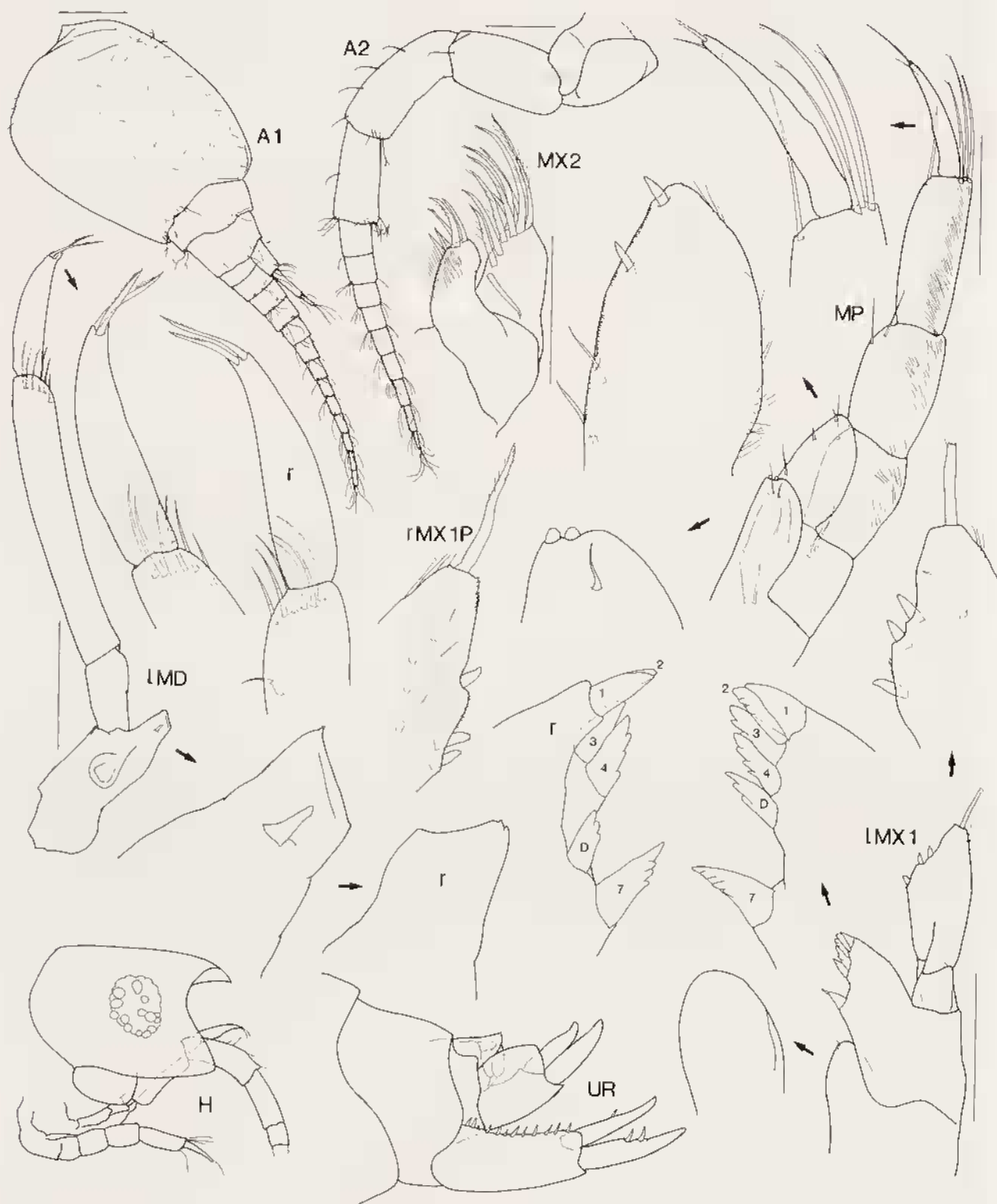


FIG. 12. — *Clepidecrella tropicalis* sp. nov., holotype female, 5.0 mm (MNHN-Am 4385), south of the Isle of Pines, New Caledonia. Scales represent 0.1 mm.

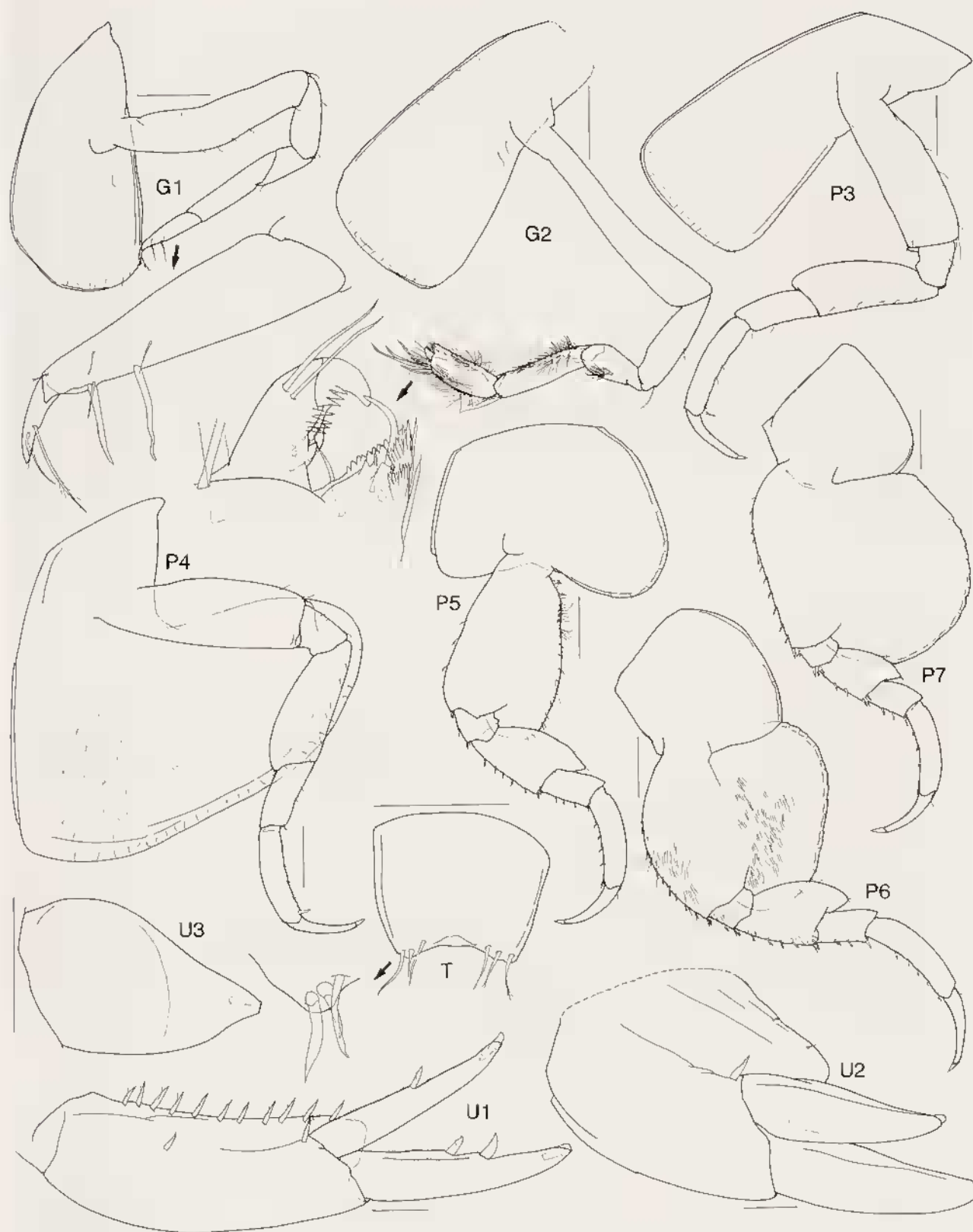


FIG. 13. — *Clepidecrella tropicalis* sp. nov., holotype female, 5.0 mm (MNHN-Am 4385), south of the Isle of Pines, New Caledonia. Scales for U1-3, T represent 0.05 mm, remainder represent 0.2 mm.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa large, as long as coxa 2, anterior margin slightly convex, anteroventral corner rounded, posterior margin straight; basis long, slender, length 4.5 times breadth, anterior margin smooth, with simple setae; ischium long, length 2.9 times breadth; merus, posterior margin without setae; carpus subrectangular, very long, length 4.6 times breadth, longer than (1.9 times) propodus, without denticulate patch near posterodistal margin; propodus large, subtriangular, length 3.1 times breadth, tapering distally, posterior margin smooth, straight, with setae, without disto-medial setae, without denticulate patch near posterior margin, palm absent; dactylus simple, with large plumose seta. *Gnathopod 2* : minutely chelate; coxa large, subequal in size to coxa 3; ischium long, length 3.6 times breadth; carpus long, length 3.5 times breadth, posterior margin straight; propodus subrectangular, long, length 2.4 times breadth, palm obtuse, with straight, serrate margin, posterodistal corner without spines; dactylus reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly; propodus with 5 setae and 1 distal locking spine along posterior margin; dactylus long, slender. *Peraeopod 4* : coxa deeper than wide, with very large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus weakly expanded anteriorly; propodus with 5 setae and 1 distal spine along posterior margin; dactylus long, slender. *Peraeopod 5* : coxa bilobate, posterior lobe slightly produced ventrally; basis moderately expanded posteriorly with posteroventral lobe about as long as merus; merus expanded with rounded posterior margin; propodus with 4 spines and 2 distal locking spines along anterior margin; dactylus long, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis, anterior margin rounded, basis expanded posteriorly with minutely crenate posterior margin, without anteroventral lobe; merus expanded with rounded posteroproximal shoulder and straight posterior margin; propodus with 4 spines and 2 distal locking spines along anterior margin; dactylus long, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin broadly rounded, posteroventral margin rounded; merus expanded, convex posterior margin with 3 spines; propodus with 3 spines and 2 distal locking spines along anterior margin and no spines along posterior margin; dactylus long, slender.

Oostegites : on peracopod 5 only. *Gills* : from gnathopod 2 to peracopod 6, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : dorsally smooth. *Uropod 1* : peduncle with 10 dorsolateral, 1 apicolateral, 1 dorsomedial and 1 apicomедial spines; rami subequal in length, outer ramus with 2 dorsal spines; inner ramus with 1 dorsal spine. *Uropod 2* : peduncle with large dorsolateral flange, with 1 apicomедial spine, without spines along distal margin; outer ramus slightly longer than inner ramus, rami without spines; inner ramus without constriction. *Uropod 3* : peduncle well developed, short, without dorsolateral flange, without dorsal spines, with 1 distal simple seta, without distoventral spines; rami absent. *Telson* : shorter than broad, length 0.75 times breadth, entire, emarginate, without dorsal setae, marginal penicillate setae or marginal spines, with 6 simple marginal setae.

ETYMOLOGY. — The name reflects the first species of *Clepidocrella* reported from a tropical area.

REMARKS. — *Clepidocrella tropicalis* and *C. cabinda* J.L. Barnard, 1962, the only other species in the genus, differ in the following ways : *C. cabinda* has no eyes; the flagellum of antenna 1 has only 5 articles, and of antenna 2, only 4; mandibular palp article 2 has only 1 distal A2-seta; gnathopod 1 is weakly subchelate and the carpus is not long and linear; the posteroventral corner of epimeron 3 is subquadrate; the peduncle of uropod 1 is less spinose; uropod 3 is biramous; and the telson is cleft.

DISTRIBUTION. — South of the Isle of Pines, New Caledonia, in 400 to 450 m depth.

Genus *CORIOLISA* gen. nov.

DIAGNOSIS. — Antenna I with callynophore in male and female. Mandible : incisor distally placed; lacinia mobilis present; lamina dentata weakly developed; accessory spine row on a raised, setose ridge, spines nodular; molar, if present, a small setose flap. Maxilla I : outer plate with small apical spine-teeth; palp vestigial.

Maxilliped with 3- or 4-articulate palp, articles 1 and 2 may be partially fused. Gnathopod 1 : palm may be defined by complex spine.

TYPE SPECIES. — *Coriolisa novacaledonia* sp. nov.

SPECIES COMPOSITION. — *Coriolisa* contains two species : *C. novacaledonia* and *C. sculptidentata* (Ren in Ren & Huang, 1991).

ETYMOLOGY. — Named for the R.V. *Coriolis*, the ship from which many of the tropical western South Pacific species have been collected.

REMARKS. — LOWRY (1984) remarked on the similarity between *Prachyuella* and *Drummondia*. *Drummondia* differs in having a dorsally placed incisor, a well developed lamina dentata on the mandible and a 4-articulate maxillipedal palp. The new species, *Coriolisa novacaledonia*, described below, obscures these differences. It has a weakly developed lamina dentata (*Prachyuella*), the spine-teeth on the outer plate of maxilla 1 are located apically (*Prachyuella*), it has a vestigial 1-articulate palp on maxilla 1 (*Prachyuella*) and it has a maxillipedal palp in which articles 1 and 2 are partially fused leaving a 3-articulate maxillipedal palp (*Drummondia*). Finally, the spines of the accessory spine row are modified into nodules sitting on a raised setose ridge, a character shared by *Coriolisa novacaledonia* sp. nov. and *C. sculptidentata* (Ren in Ren & Huang, 1991). In fact these two species appear to be closely related, but *C. sculptidentata* has a molar, a unique character among the pachynid group. We have seen evidence of a vestigial lamina dentata in other species of *Prachyuella*.

DISTRIBUTION. — *Coriolisa* is known from the tropical western South Pacific Ocean and the western Southern Ocean, in 400 to 1600 m depth.

Coriolisa novacaledonia sp. nov.

Figs 14-15

MATERIAL EXAMINED. — Loyalty Islands. BIOGEOCAL : stn CP 317, 20°48.12'S, 166°53.16'E, west of Lifou, 1620-1630 m, 1 May 1987 : 1 ♂, 6.4 mm (MNHN-Am 4400).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — West of Lifou, Loyalty Islands, 20°48.12'S, 166°14.53.16'E, 1620 to 1630 m.

DIAGNOSIS. — Mandible : accessory spine row, left with 3, right with 4 short nodular spines on a raised setose ridge. Maxilla 1 : 4 short, stout, sculptured spine-teeth on inner row of outer plate. Gnathopod 1 : palm obtuse with straight, serrate margin. Peracopod 5 : posterior margin of basis with 2 large teeth. Uropod 3 : inner ramus reduced, 0.7 times outer ramus.

DESCRIPTION. — Based on holotype male, 6.4 mm; female not known. *Head* : exposed, slightly longer than deep, ventrally truncated with straight ventral margin; lateral cephalic lobe large, broadly rounded; rostrum absent; eyes apparently absent. *Antenna 1* : short, 0.1 times body; peduncular article 1 short (really massive), length 1.2 times breadth, with small midmedial tooth, with large posterodistal tooth, without anterodistal projection; peduncular article 2 short, 0.1 times article 1, without anterodistal projection; accessory flagellum short, 0.3 times primary flagellum, 2-articulate, article 1 short, 1 times article 2; flagellum 5-articulate, with strong 1-field calynophore without spines or setae. *Antenna 2* : subequal in length to antenna 1; strongly geniculate between peduncular articles 3-4, article 3 long, 1.4 times article 4; flagellum well developed, 5-articulate, with thick setal brush on articles 1 to 3.

Mouthpart bundle : quadrate, projecting anteriorly. *Epistome* and *upper lip* : fused, straight. *Mandible* : incisors symmetrical, small, with slightly convex margins; left lacinia mobilis present, a short smooth peg; accessory spine row, left with 3, right with 4 nodular spines on raised setose ridge, left lamina dentata present; molar absent;

mandibular palp attached midway; article 1 short, length 1.6 times breadth; article 2 broad, length 2.4 times breadth, 0.9 times article 3, without A2-setae, with 4 D2-setae; article 3 spatulate, long, length 3.2 times breadth, without A3-setae, with 4 distal D3-setae and 2 apical E3-setae. *Maxilla 1*: inner plate narrow, with 2 plumose and 3 simple apical setae; outer plate with 10 spine-teeth in modified 7/4 arrangement; outer row with ST1 to ST3 large, stout, weakly cuspidate, ST4-ST5 large, stout, 5-cuspidate, ST6 large, stout, 5- to 6-cuspidate, ST7 absent; inner row with STA small, displaced from STB-STD, 4- to 5-cuspidate, STB small, slender, 3- to 4-cuspidate, STC small, slender, 2-cuspidate, medial cusp long and 3-cuspidate, STD small, slender, 2- to 3-cuspidate; palp vestigial, 1-articulate. *Maxilla 2*: inner and outer plates narrow, inner plate 0.76 times length outer plate. *Maxilliped*: inner plate small, subovate, without nodular spines, oblique setal row absent; outer plate large, subovate, without subapical notch, without apical setae, medial spines vestigial, submarginal setae short, simple; palp large, 3-articulate, articles 1 and 2 fused; article 2 broad, length 2.85 times breadth, 2.5 times article 3; article 3 short, slender, length 2 times breadth; dactylus reduced, with 1 subterminal seta, unguis present.

Peraeonites: 1 to 7 dorsally smooth. *Gnathopod 1*: chelate; coxa large, as long as coxa 2, anterior margin straight, posterior margin straight; basis long, slender, length 2.7 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.3 times breadth; merus, posterior margin with 1 seta, carpus extremely compressed, hidden by propodus; propodus massive, subrectangular, length 1.4 times breadth, margins subparallel, posterior margin smooth, subtly sinusoidal, without spines or setae, palm obtuse, margin straight, serrate, posterodistal corner with complex spine; dactylus simple, without subterminal teeth or spines. *Gnathopod 2*: minutely chelate; coxa large, subequal in size to coxa 3; ischium long, length 3.3 times breadth; carpus long, length 3.8 times breadth, posterior margin straight; propodus subrectangular, short, length 1.8 times breadth, palm slightly obtuse, with straight, serrate margin, posterodistal corner without spines; dactylus reaching corner of palm, posterior margin serrate.

Peraeopod 3: coxa large; merus weakly expanded anteriorly; propodus with 2 small setae and 1 distal spine along posterior margin; dactylus long, slender. *Peraeopod 4*: coxa as deep as wide, with large posteroventral lobe, anterior margin rounded, posterior margin sloping anteriorly; merus weakly expanded anteriorly; propodus with 2 small setae and 1 distal spine along posterior margin; dactylus long, slender. *Peraeopod 5*: coxa equilobate; basis expanded, posterodorsal margin arched, forming large posteroproximal tooth, posterior margin with two prominent teeth; merus expanded with rounded posterior margin; propodus with 3 small spines and 2 distal spines along anterior margin; dactylus short, stocky. *Peraeopod 6*: coxa small, slightly lobate posteriorly; basis, expanded, posterodorsal margin rounded, gently sloping into prominent tooth, posterior margin straight, with one weak tooth; merus expanded with rounded posterior margin; propodus with 3 spines and 2 small distal spines along anterior margin; dactylus short, stocky. *Peraeopod 7*: basis expanded posteriorly, posterior margin rounded with three posterodistal teeth, posteroventral corner subquadrate, posteroventral margin rounded; merus expanded, convex posterior margin with 3 spines; propodus with 3 spines and 1 distal spine along anterior margin and 1 distal spine along posterior margin; dactylus short, stocky.

Gills: from gnathopod 2 to peraeopod 6, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 3*: posteroventral corner broadly rounded. *Urosomites*: dorsally smooth. *Uropod 1*: peduncle with 1 dorsolateral, 1 apicolateral and 1 apicomедial spines; outer ramus slightly longer than inner ramus, outer ramus with 1 lateral spine; inner ramus without spines. *Uropod 2*: peduncle without dorsolateral flange, with 1 apicolateral and 1 apicomедial spines; rami subequal in length, without spines; inner ramus without constriction or proximal flange. *Uropod 3*: peduncle short, length 1.2 times breadth, without dorsolateral flange, without dorsal spines; rami lanceolate, inner ramus reduced, about 0.7 times outer ramus, outer ramus 2-articulate, article 2 short, outer ramus with 1 medial spine. *Telson*: shorter than broad, length 0.8 times breadth, entire, emarginate, with 8 marginal penicillate setae, without simple marginal setae, without marginal spines.

ETYMOLOGY. — The specific name refers to the general area where the species has been found.

REMARKS. — *Coriolisa novacaledonia* is easily distinguished from *C. sculptidentata* by the lack of a mandibular molar, cusps on the maxilla 1 inner row spine-teeth, the shape of the propodus and palm of gnathopod 1, the lack of a dorsal tooth on peraeonite 5, the shape of the basis of peraeopod 5 and a small notch in the telson.

DISTRIBUTION.— *Coriolisa novacaledonia* is currently known only from the Loyalty Basin, in about 1600 m depth.



FIG. 14. — *Coriolisa novacaledonia* gen. nov., sp. nov., holotype male, 6.4 mm (MNHN-Am 4400), west of Lifou, Loyalty Islands. Scales represent 0.1 mm.

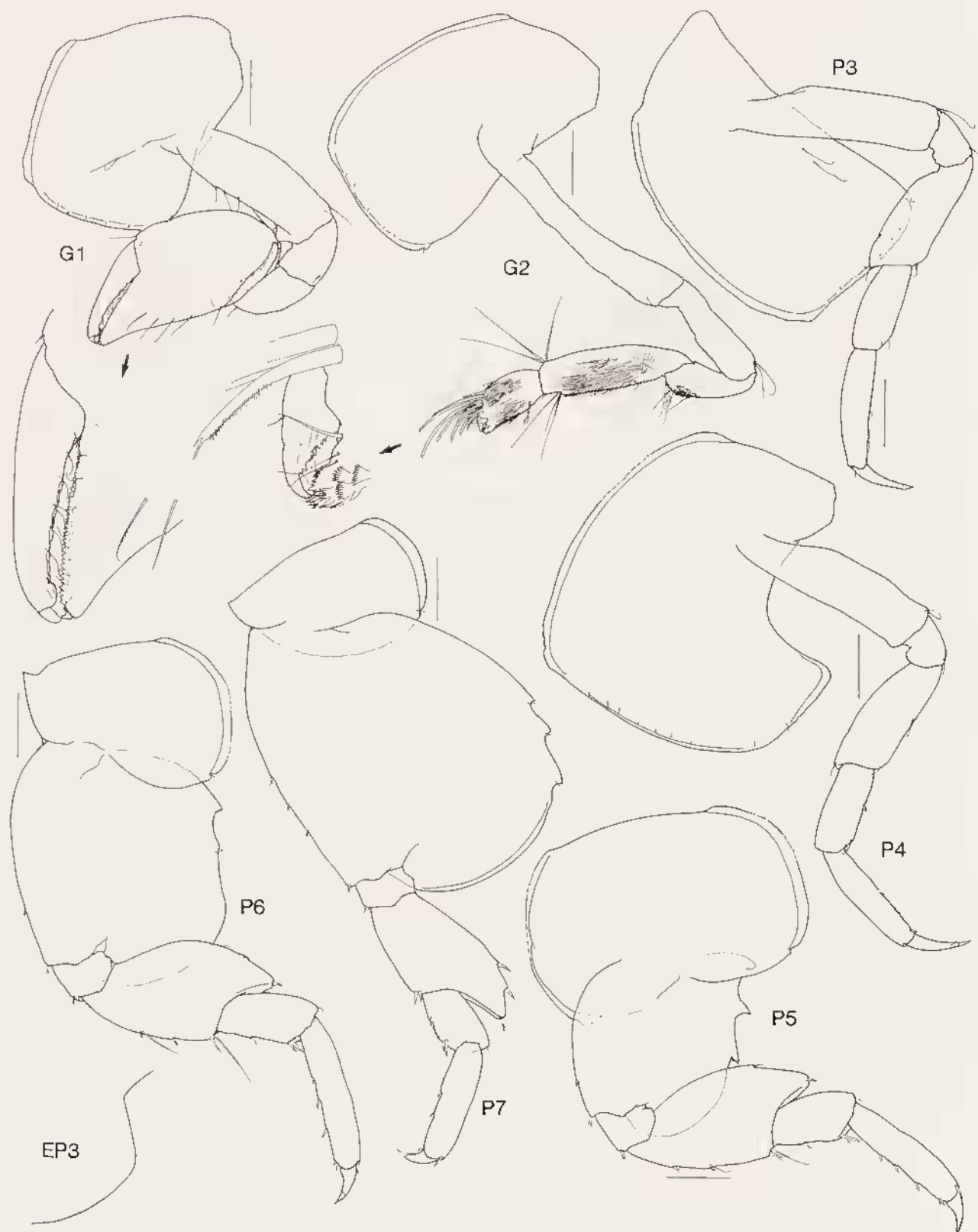


FIG. 15. — *Coriolisa novacaledonia* gen. nov., sp. nov., holotype male, 6.4 mm (MNHN-Am 4400), west of Lifou, Loyalty Islands. Scales represent 0.2 mm.

Genus *CYCLOCARIS* Stebbing, 1888*Cyclocaris tahitensis* Stebbing, 1888

Cyclocaris tahitensis Stebbing, 1888 : 664, pl. 8; 1906 : 30, fig. 7. — DELLA VALLE, 1893 : 843, pl. 60, fig. 53. — J.L. BARNARD, 1958 : 91. — GURJANOVA, 1962 : 85, fig. 17. — THURSTON & ALLEN, 1969 : 358. — WILSON *et al.*, 1985 : 1248, 1251. — BARNARD & KARAMAN, 1991 : 479. — VINOGRADOV & VINOGRADOV, 1991 : 33. — VINOGRADOV, 1993 : 43.

not *Cyclocaris tahitensis* - CHEVREUX, 1903 : 89; 1935 : 31, pl. 4, fig. 4 (= *Cyclocaris* sp.).

MATERIAL EXAMINED. — Austral Isles, SMCB, R.V. *Marara* (J. POUPIN & J.K. LOWRY coll.) : stn FRP-6, 21°47.9'S, 154°34.8'W, north-east of Maria Island, baited trap, 680 m, 8-9 August 1991 : 4 specimens (AM P42125). — Stn FRP-7, 21°47.7'S, 154°43.4'W, north-east of Maria Island, baited trap, 500 m, 8-9 August 1991 : 8 specimens (AM P42126). — Stn FRP-21, 22°29.3'S, 151°21.6'W, off Rurutu, baited trap, 840 m, 10-11 August 1991 : 120 specimens (AM P42127). — Stn FRP-23, 22°29.3'S, 151°21.6'W, off Rurutu, baited trap on sandy bottom, 490 m, 10-11 August 1991 : 13 specimens (AM P42128). — Stn FRP-24, 22°29.3'S, 151°21.9'W, off Rurutu, baited trap on sandy bottom, 490 m, 10-11 August 1991 : 1 specimen (AM P42129). — Stn FRP-38, 23°18.6'S, 149°29.7'W, off Tubuai, baited trap, 840 m, 12-13 August 1991 : about 300 specimens (MNHN-Am 4777), about 1000 specimens (AM P42130). — Stn FRP-40, 23°19.2'S, 149°28.9'W, off Tubuai, baited trap, 65 m, 12-13 August 1991 : 1 specimen (AM P42131). — Stn FRP-54, 27°35.3'S, 144°15.5'W, off Rapa, baited trap, 870 m, 17-18 August 1991 : 1 specimen (AM P42132). — Stn FRP-55, 27°35.3'S, 144°15.5'W, off Rapa, baited trap, 870 m, 17-18 August 1991 : 505 specimens (AM P42133). — Stn FRP-64, 27°35.5'S, 144°15.8'W, off Rapa, large baited trap, 750 m, 18-19 August 1991 : 1 specimen (AM P42134). — Stn FRP-65, 27°35.5'S, 144°15.8'W, off Rapa, baited trap, 750 m, 18-19 August 1991 : 1 specimen (AM P42135). — Stn FRP-66, 27°35.5'S, 144°15.8'W, off Rapa, baited trap, 750 m, 18-19 August 1991 : 8 specimens (AM P42136).

REMARKS. — The recent use of small-mesh baited traps (VINOGRADOV & VINOGRADOV, 1991; VINOGRADOV, 1993, and this paper) has shown that *Cyclocaris tahitensis* is a widespread, abundant scavenger in the South Pacific Ocean.

DISTRIBUTION. — Hamilton and Hess guyots, central North Pacific ocean (1740 to 1790 m); Tahiti (750 m); Austral Isles (490 to 870 m); Nasca Ridge (560 m); East Pacific vent region west of Sala y Gómez, south-eastern South Pacific Ocean (2024 to 2038 m).

Genus *CYPHOCARIS* Boeck, 1871*Cyphocaris bellona* sp. nov.

Figs 16-18

MATERIAL EXAMINED. — New Caledonia. BIOCAL : stn CP 61, 24°11.67'S, 167°31.37'E to 24°10.67'S, 167°33.65'E, south of the Isle of Pines, beam trawl, 1070 m, 2 September 1985 : 1 specimen (AM P42137). — Stn CP 69, 23°51.38'S, 167°58.68'E to 23°52.21'S, 167°57.82'E, south of the Isle of Pines, beam trawl, 1220-1225 m, 3 September 1985 : 1 ♂ (probably not fully mature), 18 mm (MNHN-Am 4434).

Loyally Islands. BIOGEOCAL : stn CP 272, 21°00.04'S, 166°56.94'E, south-west of Pointe Lefèvre, Lifou, beam trawl, 1615-1710 m, 20 April 1987 : 1 specimen (MNHN-Am 4431).

Chesterfield Islands. MUSORSTOM 5 : stn DC 321, 21°20.40'S, 158°02.20'E, west of Middle Bellona, 1000 m, 14 October 1986 : 1 ♀, 20 mm (MNHN-Am 4427).

TYPES. — The female, 20 mm (MNHN-Am 4427), is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — West of Middle Bellona, Chesterfield Islands, 21°20.40'S, 158°02.20'E, in 1000 m depth.

DIAGNOSIS. — Peraconite 1 : produced into a long, narrow slightly down-turned process. Gnathopod 2 : palm acute with convex, serrate margin. Peraeopod 5 : posteroventral corner of basis produced into elongate.

dorsoproximally serrate spur. Uropod 2 : outer ramus shorter than (about 0.7 times) inner ramus. Telson 1.1 times as long as uropod 3, cleft 75%.

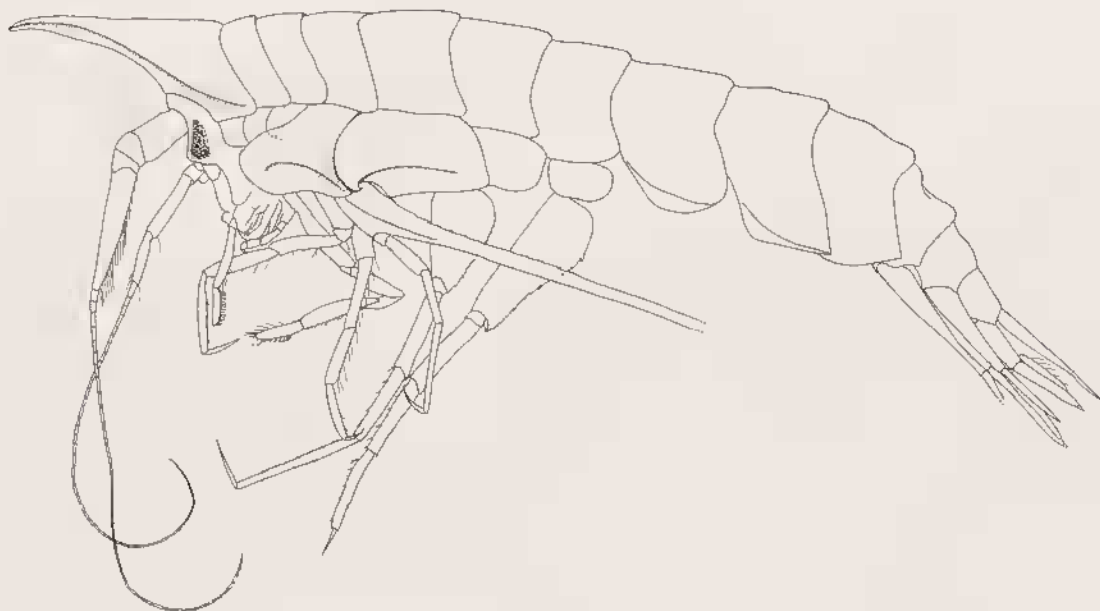


FIG. 16. — *Cyphocaris bellona* sp. nov., holotype female, 20 mm (MNHN-Am 4427), west of Bellona Reefs, Chesterfield Islands, Coral Sea.

DESCRIPTION. — Based on holotype female, 20 mm (MNHN-Am 4427); paratype male, 18 mm (MNHN-Am 4434). *Head* : positioned under produced peraeonite 1, narrow, much deeper than long, extending well below insertion of antenna 2; lateral cephalic lobe small, subacute; rostrum absent; eyes oval, not enlarged in adult male. *Antenna 1* : elongate, 0.6 times body; peduncular article 1 short, length 1.1 times breadth, without dorsal crest, tooth on distomedial margin or posterodistal tooth, with short anterodistal projection; peduncular article 2 short, 0.4 times article 1, without anterodistal projection; peduncular article 3 long, 0.43 times article 1; accessory flagellum very short, 0.16 times primary flagellum, at least 5-articulate, article 1 long, 4.3 times article 2 (male long, 6.6 times article 2), not forming cap; flagellum 33-articulate (male 34-articulate), with strong 2-field calynophore in female and male, without posterodistal setae or spines, with 1 spine each on flagellar articles 3 and 6, calceoli absent in female and male. *Antenna 2* : subequal in length to antenna 1; peduncle with weak brush setae in female and male, weakly geniculate between peduncular articles 3-4, article 3 short, 0.23 times article 4 (male weakly geniculate between peduncular articles 3-4, article 3 short, 0.39 times article 4), peduncular article 4 enlarged in male; flagellum well developed, at least 40-articulate (male at least 98), calceoli absent in female and male.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate; epistome long, straight; upper lip slightly produced, rounded. *Mandible* : incisors symmetrical, small, with slightly convex margins; left lacinia mobilis present, a stemmed distally cusped blade; accessory spine row without distal setal tuft, left and right rows each with 3 long, slender, "bushy" spines, with 2 "bottle-brush" intermediate setae; molar proximally setose, distally triturating; mandibular palp attached distally; article 1 short, length 1 times breadth; article 2 slender, length 5.1 times breadth, 1.4 times article 3, with 18 submarginal posterodistal A2-setae (male 20), without B2-setae or D2-setae; article 3 slender, blade-like, long, length 4.3 times breadth, without A3-setae or B3-setae, with 57 (male 55) D3-setae along most of posterior margin and 2 apical E3-setae. *Maxilla 1* : inner plate tapering distally, at least half of inner margin setose, with 9 plumose setae; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, multicuspidate, ST4 large, stout, 3-cuspidate, ST5 large, stout, 4-cuspidate, ST6 large, stout, 5-cuspidate, ST7 contiguous with ST6, large, broad, 7-cuspidate medially; inner row with STA large, slightly displaced from STB-STD, 3-cuspidate, STB large, broad, 3-cuspidate, STC large, broad, 4-cuspidate,

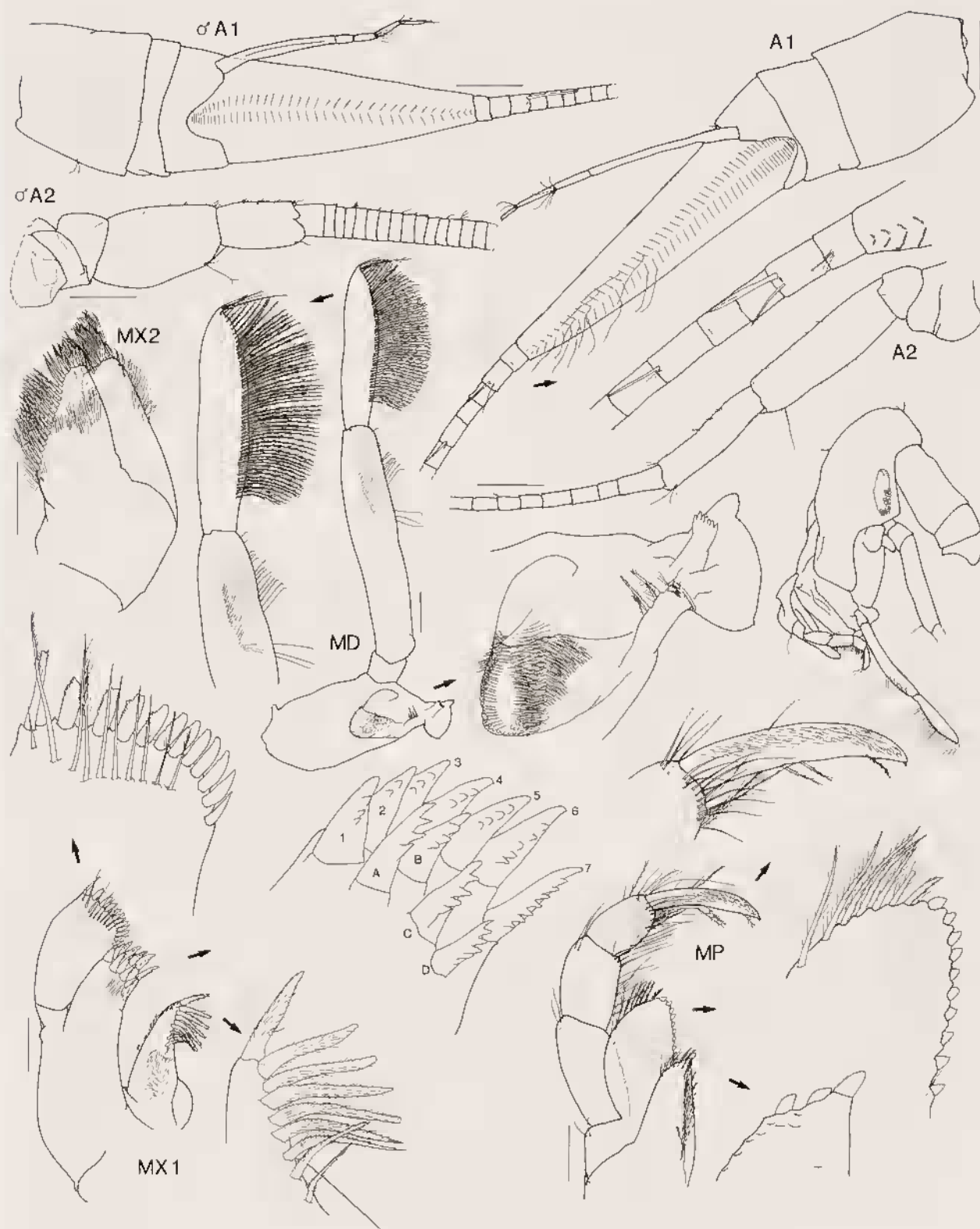


FIG. 17. — *Cyphocaris bellona* sp. nov., holotype female, 20 mm (MNHN-Am 4427); paratype male, 18 mm, MNHN-Am 4334; west of Bellona Reefs, Chesterfield Islands, Coral Sea. Scales for A1 and A2 represent 0.5 mm, remainder represent 0.2 mm.

STD large, broad, 5-cuspidate; palp large, 2-articulate, with 11 long terminal spines, with 10 subterminal setae, flag spine present on distolateral corner, distomedial margin smooth. *Maxilla 2* : inner plate broad, outer plate narrow, inner plate 1 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, with 1 distal spine on lateral face near inner margin, oblique setal row strong with 19 plumose setae; outer plate small, subovate, without subapical notch, with 7 apical plumose setae, without apical spines or apical teeth, medial spines present, large, submarginal setae long, simple; palp large, 4-articulate; article 2 broad, length 1.5 times breadth, 1.1 times article 3; article 3 short, broad, length 1.7 times breadth; dactylus very large, blade-like, with 4 subterminal plumose setae, unguis vestigial.

Peraeonite 1 produced anteriorly into long, narrow, slightly down-turned process. *Gnathopod 1* : simple; coxa vestigial; basis very long, slender, length 5.2 times breadth, anterior margin smooth, with simple setae; ischium short, length 0.9 times breadth, anterior margin smooth; merus, posterior margin with group of long simple setae and patch of short setae; carpus subrectangular, short, length 1.5 times breadth, shorter than (0.9 times) propodus, with patch of very fine setae near posterior margin and long simple setae along posterior margin; propodus large, subtriangular, length 2.1 times breadth, tapering distally, posterior margin serrate, straight, with 6 spines, without denticulate patch near posterior margin, palm absent; dactylus simple, with large subterminal tooth and row of 20 cuticular teeth along posterior margin. *Gnathopod 2* : minutely subchelate; coxa vestigial; ischium long, length 3.2 times breadth; carpus very long, length 4.7 times breadth, posterior margin straight; propodus subrectangular, long, length 3.2 times breadth, posterior margin without strong distal spines, palm acute, with convex, serrate margin, posterodistal corner with 1 (male 1) medial spine; dactylus reaching corner of palm, posterior margin smooth with 1 large spine.

Peraeopod 3 : coxa vestigial; merus not expanded anteriorly, male and female merus-carpus without plumose setae; propodus with 5 spines and 2 distal spines along posterior margin; dactylus long, slender. *Peraeopod 4* : coxa deeper than wide, with acutely produced posteroventral lobe, anterior margin broadly rounded, posterior margin sinusoidal; merus not expanded anteriorly, male and female merus-carpus without plumose setae; propodus with 3 spines and 2 distal spines along posterior margin; dactylus long, slender. *Peraeopod 5* : coxa equilobate; basis expanded posteroventrally to form elongate spur with serrate dorsoproximal margin, merus not expanded posteriorly; propodus with 9 spines and 2 distal spines along anterior margin; dactylus long, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis slightly expanded posteriorly with incised posterior margin, without anteroventral lobe; merus not expanded posteriorly; propodus with 9 spines and 2 distal spines along anterior margin; dactylus long, slender. *Peraeopod 7* : basis slightly expanded posteriorly, posterior margin sinusoidal, crenate, posteroventral corner subquadrate, posteroventral margin straight; merus not expanded posteriorly, with 6 spines; propodus with 7 spines and 1 distal spine along anterior margin and 2 spines along posterior margin; dactylus long, slender.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 7, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner rounded. *Epimeron 3* : posteroventral corner subquadrate. *Urosomites* : urosomite 1 with anterodorsal notch, without lateral flange; urosomite 3 without small dorsolateral spine. *Uropod 1* : without fine setae; peduncle with 3 dorsolateral and 1 apicolateral spines; outer ramus, length 0.75 times inner ramus, outer ramus without spines; inner ramus with 5 lateral spines. *Uropod 2* : without fine setae; peduncle without dorsolateral flange, with 1 apicolateral spine, without plumose setae, without spines along distal margin; outer ramus 0.7 times as long as inner ramus, inner ramus with 5 lateral spines in weak acclivities; inner ramus without constriction. *Uropod 3* : peduncle well developed, long, length 2.3 times breadth, without dorsolateral flange, with 1 apicomedial spine, with 8 midlateral setae, without distoventral spines, with plumose setae in female and male; hiramous, rami lanceolate, inner ramus reduced, about 0.67 times outer ramus, outer ramus 2-articulate, article 2 short, rami without spines, plumose setae present in female and male. *Telson* : longer than broad, length 3.7 times breadth, deeply cleft (75%), with 1 dorsal spine on each lobe, without dorsal setae, distal margins truncated, without marginal penicillate setae, simple setae or spines.

ETYMOLOGY. — Named for the Bellona reefs near the type locality.

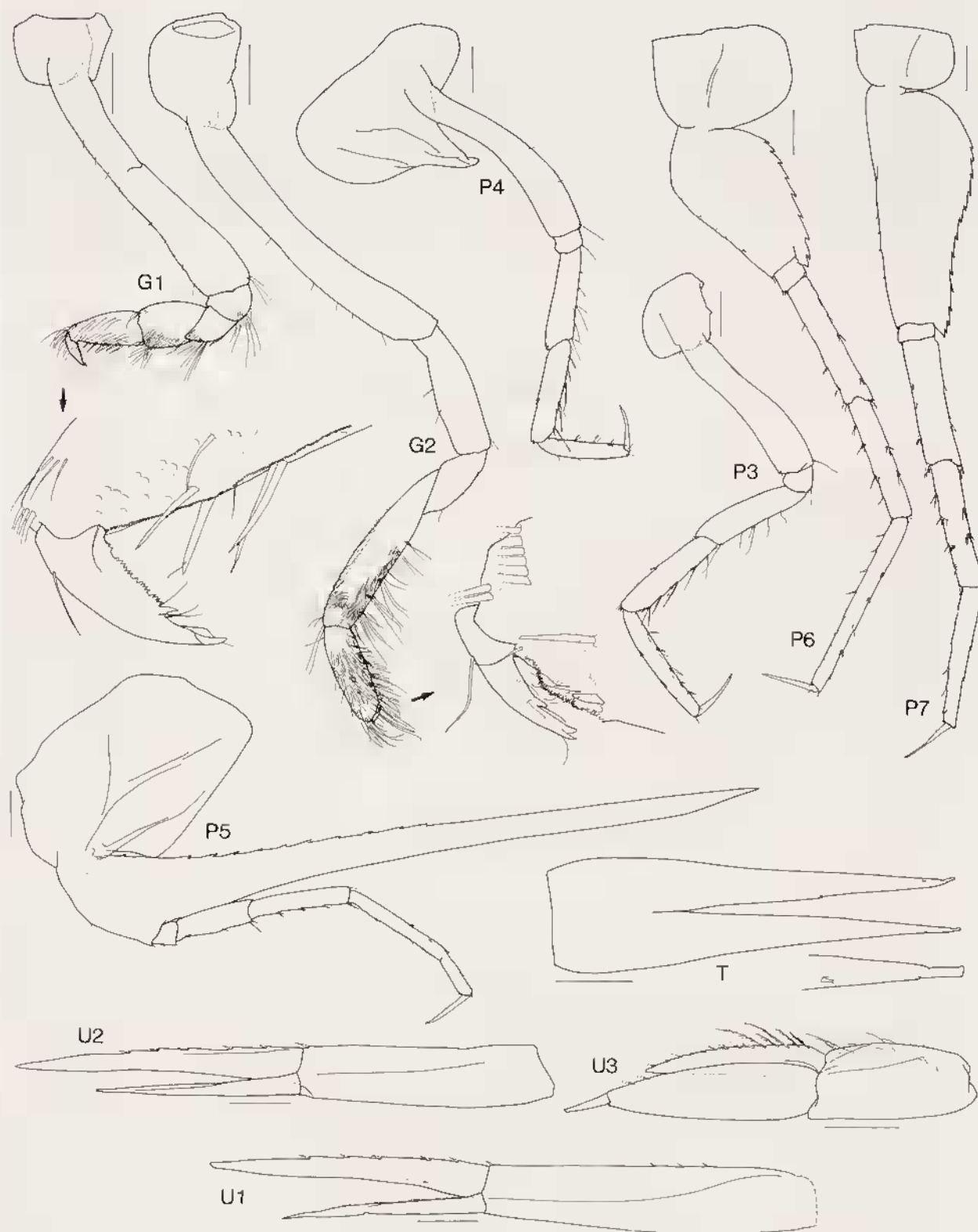


FIG. 18. — *Cyphocaris bellona* sp. nov., holotype female, 20 mm (MNHN-Am 4427), west of Bellona Reefs, Chesterfield Islands, Coral Sea. Scales represent 0.2 mm.

REMARKS. — The only species which appears to be closely related to *Cyphocaris bellona* is *C. johnsoni* described by SHOEMAKER (1934) from waters above the Puerto Rican trench, and not reported since. Both species have a posteroventral spur on the basis of pereopod 5 in which only the dorsal margin is serrate. However, in *C. johnsoni* pereopod 1 is distinctly curved upwards, the palm of gnathopod 2 is extremely acute and concave, uropod 3 reaches only 0.57 times the length of the telson (0.88 times in *C. bellona*) and the telson is cleft 90%. *Cyphocaris geysersensis* Ledoyer, 1986, has a strongly serrate dorsal margin on the posteroventral spur of the basis of pereopod 5 and a weakly serrate ventral margin. It differs further from *C. bellona* in having a differently shaped pereopod 1 projection, a convex posterior margin on the basis of pereopod 7, subequal rami on uropod 2 and a more deeply cleft telson.

DISTRIBUTION. — Chesterfield Islands to the Loyalty Islands, in 1000 to 1700 m depth.

Genus *EURYTHENES* Smith, 1882

Eurythenes cf. *gryllus* (Lichtenstein, 1822)

MATERIAL EXAMINED. — New Caledonia. R.V. *Vauban* : stn CA-1, 20°44'S, 166°27'E, baited trap, 1000 m, A. INTES, 19 February 1977 : 2 ♂, 1 juvenile (AM P28855).

Loyalty Islands. BIOGEOCAL : stn CP 265, 21°04.09'S, 166°00.40'E, Loyalty Islands Basin, 1760-1870 m, 18 April 1987 : 1 immature specimen (MNHN-Am 4465). — Stn CP 317, 20°48.12'S, 166°53.16'E, west of Lifou, 1620-1630 m, 1 May 1987 : 1 ♂ (MNHN-Am 4403).

Wallis and Futuna Islands. MUSORSTOM 7 : stn CP 550, 12°14.8'S, 177°28.0'W, Combe Bank, beam trawl, 800-810 m, 18 May 1992 : 1 ♀ (MNHN-Am 4778). — Stn CP 627, 11°54.2'S, 179°31.4'W, Bayonnaise Bank, beam trawl, 597-600 m, 29 May 1992 : 2 ♂, 3 ♀, 1 immature (MNHN-Am 4779). — Stn CP 632, 11°54.0'S, 179°31.5'W, Bayonnaise Bank, beam trawl, 595-600 m, 29 May 1992 : 1 ♂ (MNHN-Am 4780).

Austral Isles. SMCB, R.V. *Marara* : stn FRP-54, 27°35.3'S, 144°15.5'W, just off Rapa, baited trap in 870 m, J.K. LOWRY & J.M. POUPIN, 17-18 August 1991 : 1 ♂ (AM P42138).

Tuamotu Archipelago. SMCB, R.V. *Marara* : 22°16'S, 138°42'W, Fangataufa atoll, baited trap, 900-1000 m, J.M. POUPIN : 2 ♂, 1 ♀ (AM P42139).

REMARKS. — Although these specimens are very similar to *Eurythenes gryllus* evidence is accumulating which suggests that the South Pacific populations are a separate species.

Genus *FIGORELLA* J.L. Barnard, 1962

Figorella tasmanica Lowry, 1984

Figorella tasmanica Lowry, 1984 : 86, figs 28-30.

MATERIAL EXAMINED. — New Caledonia. BIOGEOCAL : stn KG 201, 22°40.42'S, 166°32.72'E, south-west of Nouméa, 595 m, 7 April 1987 : 1 specimen (MNHN-Am 4424). — Stn KG 211, 22°41.80'S, 166°32.53'E, south-west of Nouméa, 975 m, 9 April 1987 : 1 specimen (MNHN-Am 4423).

Loyalty Islands. BIOGEOCAL : stn CP 317, 20°48.12'S, 166°53.16'E, west of Lifou, 1620-1630 m, 1 May 1987 : 1 specimen (MNHN-Am 4781).

REMARKS. — This is the first record of *Figorella tasmanica* since its description and significantly extends the geographic and depth ranges.

DISTRIBUTION. — *Figorella tasmanica* is known from : off the New South Wales coast, eastern Australia (615 to 1200 m); New Caledonia (595 to 1630 m).

Genus *HIPPOMEDON* Boeck, 1871*Hippomedon vao* sp. nov.

Figs 19-21

MATERIAL EXAMINED. — New Caledonia. BIOCAL : stn DW 51, 23°05.27'S, 167°44.95'E, south of the Isle of Pines, 680-700 m, 31 September 1985 : 1 ♂, 10 mm (MNHN-Am 4444). — Stn CP 75, 22°18.65'S, 167°23.30'E, north of the Isle of Pines, 825-860 m, 4 September 1985 : 1 immature specimen (MNHN-Am 4378). — Stn DW 77, 22°15.32'S, 167°15.40'E, north-west of the Isle of Pines, 440 m, 5 September 1985 : 3 ♂ (MNHN-Am 4794).

TYPES. — The male (MNHN-Am 4444) is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — South of the Isle of Pines, 23°05.27'S, 167°44.95'E, 680 to 700 m.

DIAGNOSIS. — Eye present. Maxilla 1 : inner plate with 2 apical, plumose setae. Gnathopod 1 : carpus long, 1.5 times propodus; palm acute with slightly convex, serrate margin. Epimeron 3 : posteroventral tooth small, broad. Telson : length 1.2 times breadth, cleft 75%.

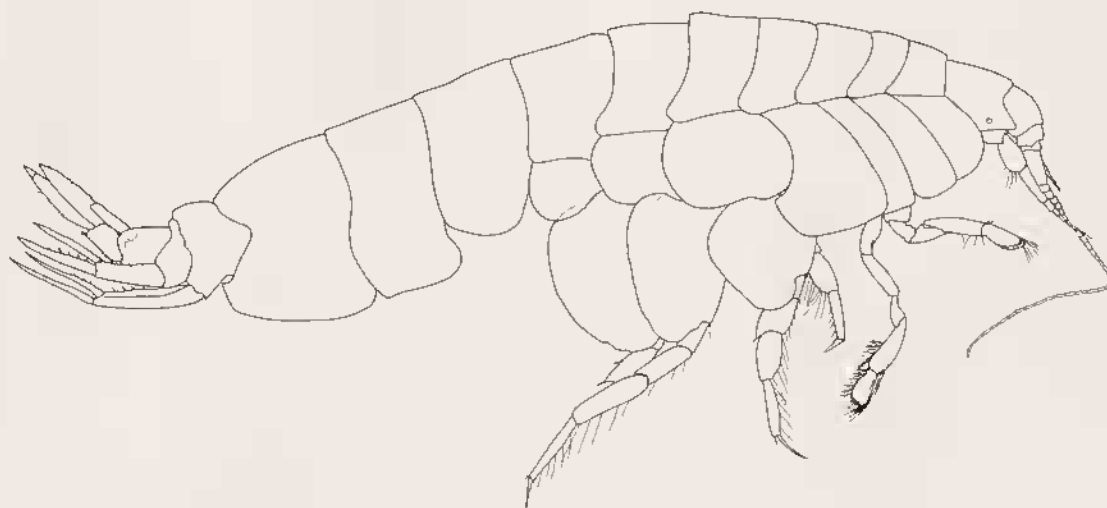


FIG. 19. — *Hippomedon vao* sp. nov., holotype male, 10 mm (MNHN-Am 4444), south of the Isle of Pines, New Caledonia.

DESCRIPTION. — Based on male holotype, 10 mm; female not known. *Head and body* : without setae. *Head* : exposed, deeper than long; lateral cephalic lobe large, narrow, subacute; rostrum absent; eyes absent in preserved material, ventral lens present. *Antenna 1* : short, 0.17 times body; peduncular article 1 short, length 1.1 times breadth, without dorsal crest, with small midmedial swelling, without posterodistal tooth or anterodistal projection; peduncular article 2 short, 0.29 times article 1, without anterodistal projection; peduncular article 3 short, 0.23 times article 1; accessory flagellum medium length, 0.42 times primary flagellum, 5-articulate, article 1 short, 1.3 times article 2; flagellum 12-articulate, with strong 2-field calynophore with 6 large posterodistal spines, without flagellar spines, calceoli present in adult male, proximal calceoli much larger than rest. *Antenna 2* : 0.7 times body length in male; peduncle with strong brush setae, weakly geniculate between peduncular articles 3-4, article 3 short, 0.55 times article 4, peduncular articles 4 and 5 not enlarged in male; flagellum well developed, 31-articulate in male, calceoli present in adult male.

Mouthpart bundle : subquadrate. *Epistome and upper lip* : separate; epistome straight; upper lip slightly produced, rounded. *Mandible* : incisors symmetrical, small, with slightly convex margins; left lacinia mobilis present, a stemmed distally serrate blade; accessory spine row without distal setal tuft, left and right rows each

with 3 short, slender, "bushy" spines, without intermediate setae; molar columnar with fully triturating surface, large plumose seta absent; mandibular palp attached distally; article 1 short, length 1 times breadth; article 2 slender, length 3.5 times breadth, 1.2 times article 3, with 15 submarginal posterodistal A2-setae, without B2-setae or D2-setae; article 3 falcate, long, length 3.5 times breadth, without proximal A3-setae, without B3-setae, with 21 D3-setae along most of posterior margin and 2 apical E3-setae. *Maxilla 1*: inner plate narrow with 2 plumose apical setae, outer seta with denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, weakly cuspidate, ST4 large, stout, 2-cuspidate, ST5 large, stout, 3-cuspidate,



FIG. 20. — *Hippomedon vao* sp. nov., holotype male, 10 mm (MNHN-Am 4444), south of the Isle of Pines, New Caledonia. Scales represent 0.2 mm.

ST6 large, stout, 7-cuspidate, ST7 contiguous with ST6, large, broad, 6-cuspidate; inner row with STA large, slightly displaced from STB-STD, 3-cuspidate, STB large, broad, 3-cuspidate, STC-STD large, broad, 4-cuspidate; palp large, 2-articulate, with 9 short terminal spines, with 1 subterminal setae, flag spine present on distolateral corner, distomedial margin smooth. *Maxilla 2*: inner and outer plates broad, inner plate 1 times length outer plate. *Maxilliped*: inner plate large, subrectangular, with 3 apical nodular spines, with 2 distal spines on lateral face near inner margin, oblique setal row strong with 15 plumose setae; outer plate medium size, subovate, without subapical notch, without apical setae, with 1 apical spine, without apical teeth, medial spines present, large, submarginal setae short, simple; palp large, 4-articulate; article 2 very broad, length 2.2 times breadth, 1.1 times article 3; article 3 short, broad, length 1.4 times breadth; dactylus well developed, with 5 subterminal setae, unguis present.

Peraeonites: 1 to 7 dorsally smooth. *Gnathopod 1*: subchelate; coxa large, as long as coxa 2, anterior margin slightly convex, anteroventral corner rounded, posterior margin slightly convex; basis long, slender, length 3.7 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.3 times breadth; merus, posterior margin with a few simple setae; carpus subrectangular, long, length 2.8 times breadth, longer than (1.5 times) propodus, with long simple setae along posterior margin; propodus large, subovate, length 1.8 times breadth, margins slightly converging distally, posterior margin smooth, straight, with 2 spines, without denticulate patch near posterior margin, palm extremely acute, margin convex, serrate, posterodistal corner with 1 medial and 1 lateral spines; dactylus simple, without subterminal teeth or spines. *Gnathopod 2*: minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 2.8 times breadth; carpus long, length 3.1 times breadth, posterior margin straight; propodus subrectangular, short, length 1.7 times breadth, posterior margin without strong distal spines, palm transverse, with straight, serrate margin, posterodistal corner with 5 medial and 4 lateral spines; dactylus not reaching corner of palm, posterior margin serrate.

Peraeopod 3: coxa large; merus not expanded anteriorly, male merus-carpus without plumose setae, female not known; propodus with 4 spines and 1 distal spine along posterior margin; dactylus long, slender. *Peraeopod 4*: coxa deeper than wide, with large posteroventral lobe, anterior margin rounded, posterior margin sloping anteriorly; merus not expanded anteriorly, male merus-carpus without plumose setae; propodus with 4 spines and 1 distal spine along posterior margin; dactylus long, slender. *Peraeopod 5*: coxa equilobate; basis expanded with posterior margin smooth; merus expanded with rounded posterior margin; propodus with 5 spines, 4 setae and 2 distal spines along anterior margin; dactylus long, slender. *Peraeopod 6*: coxa small, not lobate posteriorly; basis slightly expanded posteriorly with weakly crenate posterior margin, without anteroventral lobe; merus not expanded posteriorly; propodus posterior margin 5 spines, 5 setae and 1 distal spine along anterior margin; dactylus long, slender, straight and closing along palm of propodus. *Peraeopod 7*: basis expanded posteriorly, posterior margin rounded, minutely crenate, posteroventral corner rounded, posteroventral margin straight; merus not expanded posteriorly with 2 spines; propodus and dactylus unknown.

Gills: from gnathopod 2 to peraeopod 7, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1*: anteroventral corner rounded. *Epimeron 3*: posteroventral corner produced into small, broad tooth. *Urosomites*: dorsally smooth; urosomite 3 without small dorsolateral spine. *Uropod 1*: without fine setae; peduncle with 9 dorsolateral, 1 apicolateral, 9 dorsomedial and 1 apicomедial spines; outer ramus slightly longer than inner ramus, outer ramus with 1 lateral spine; inner ramus with 2 medial and 3 lateral spines. *Uropod 2*: without fine setae; peduncle without dorsolateral flange, with 4 dorsolateral, 1 apicolateral, 2 dorsomedial and 1 apicomедial spines, without spines along distal margin; outer ramus slightly longer than inner ramus, outer ramus with 5 lateral spines in weak acclivities; inner ramus with 3 medial and 5 lateral spines, inner ramus without constriction. *Uropod 3*: peduncle well developed, short, length 1.4 times breadth, without dorsolateral flange, with 1 apicolateral and 3 apicomедial spines, without midlateral spines or setae, with 4 distoventral spines, with 8 simple setae; rami lanceolate, subequal in length, outer ramus 2-articulate, article 2 short, article 1 with 8 lateral spines; inner ramus with 2 medial and 6 lateral spines, plumose setae present in male. *Telson*: longer than broad, length 1.2 times breadth, deeply cleft (75%), with 2 dorsal spines on each lobe, distal margins oblique, without marginal penicillate setae or simple marginal setae, with 1 marginal spine on each lobe.

ETYMOLOGY. — Named for the town of Vao on the Isle of Pines.

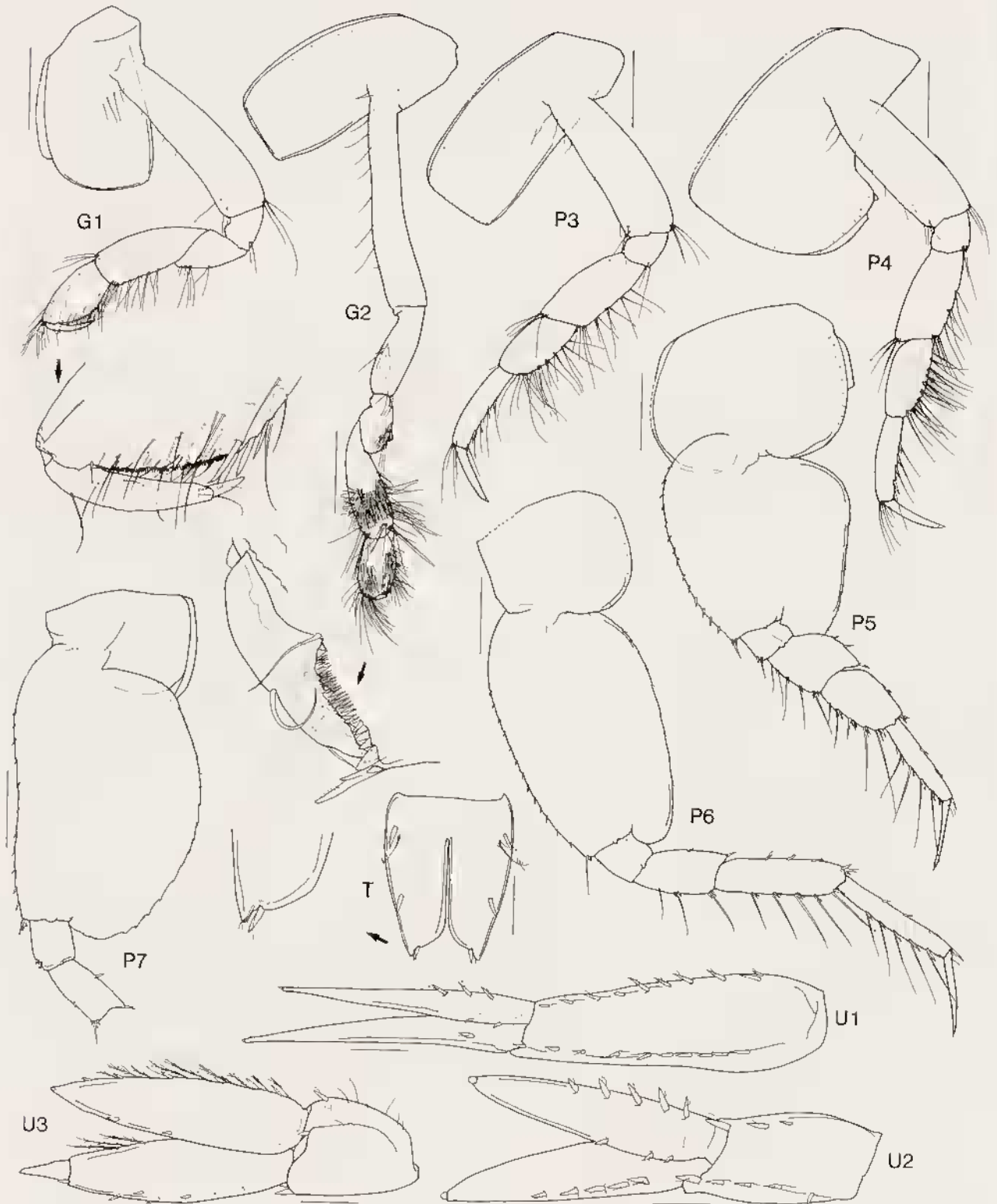


FIG. 21. — *Hippomedon vao* sp. nov., holotype male, 10 mm (MNHN-Am 4444); south of the Isle of Pines, New Caledonia. Scales for U1-3 represent 0.2 mm, remainder represent 0.5 mm.

REMARKS. — According to JARRETT and BOUSFIELD (1982) this species belongs in the large genus *Hippomedon*. *Hippomedon vao* occurs in the group of species without the notched tooth on epimeron 3 and with a short telson. It is most closely related to *Hippomedon bandae* Pirlot, 1933, from the Banda Sea, Indonesia. Both species have a weakly developed posteroventral tooth on epimeron 3 and a short telson, but the bases of pereopods 5 and 7 are longer and more slender in *H. bandae* and the inner ramus of uropod 2 is shorter than the outer.

DISTRIBUTION. — *Hippomedon vao* is known from southern New Caledonia, in 440 to 860 m depth.

Genus *ICHNOPUS* Costa, 1853

Ichnopus malpatun Lowry & Stoddart, 1992

Ichnopus malpatun Lowry & Stoddart, 1992 : 210, figs 15-16.

MATERIAL EXAMINED. — New Caledonia. MUSORSTOM 4 : stn DW 150, 19°23.40'S, 163°22.70'E, north of the Belep Isles, 110 m, 14 September 1985 : 2 ♂ (MNHN-Am 4402).

CHALCAL 2 : stn DW 80, 23°26.70'S, 168°01.80'E, south of the Isle of Pines, 80-160 m, 31 October 1986 : 1 ♂ (MNHN-Am 4432).

DISTRIBUTION. — *Ichnopus malpatun* is known from outside the barrier reef, Madang Lagoon, northern Papua New Guinea (95 m); off the Grand Passage, northern New Caledonia (110 to 165 m) and off the Isle of Pines, southern New Caledonia (80 to 160 m).

Genus *KERGUELENIA* Stebbing, 1888

Kerguelenia Stebbing, 1888 : 1219; 1906 : 11. — SARS, 1891 : 119. — DELLA VALLE, 1893 : 786. — STEPHENSEN, 1929 : 51. — J.L. BARNARD, 1969 : 346. — LEDOYER, 1986 : 770. — DIVIACCO & RUFFO, 1989 : 488. — BARNARD & KARAMAN, 1991 : 493.

DIAGNOSIS. — Mandible : incisor, lacinia mobilis, accessory spine row and molar all absent. Maxilla 1 : inner plate reduced, without apical setae; outer plate with reduced number of spine-teeth. Maxilliped : inner and outer plates reduced in size and spination. Gnathopod 1 : simple, linear. Pereopod 4 : coxa with very large posteroventral lobe. Pereopod 5 : basis linear to moderately expanded. Uropod 3 : inner ramus reduced or absent.

TYPE SPECIES. — *Kerguelenia compacta* Stebbing, 1888, by monotypy.

SPECIES COMPOSITION. — The genus contains 15 taxa : *Kerguelenia adeliensis* Bellan-Santini, 1972; *K. antarctica* K.H. Barnard, 1930; *K. antiborealis* Bellan-Santini & Ledoyer, 1987; *K. borealis* Sars, 1891; *K. b. japonica* Gurjanova, 1962; *K. b. ochotica* Gurjanova, 1962; *K. compacta* Stebbing, 1888; *K. eoa* Gurjanova, 1962; *K. glacialis* Schellenberg, 1926a; *K. koutoumo* sp. nov.; *K. lifou* sp. nov.; *K. macropoda* Ledoyer, 1986; *K. microphthalma* Ledoyer, 1986; *K. palpalis* K.H. Barnard, 1932; *K. reducta* Ledoyer, 1977.

DISTRIBUTION. — *Kerguelenia* is a cosmopolitan genus occurring in 15 to 3700 m depth.

Kerguelenia koutoumo sp. nov.

Figs 22-24

MATERIAL EXAMINED. — New Caledonia. CALSUB : stn PL 20, 22°52.7'S, 167°23'E, south of the Isle of Pines, 555-616 m, 10 March 1989 : 1 ♂, 4.0 mm (MNHN-Am 4782); 1 ♀, 4.2 mm, 1 juvenile (MNHN-Am 4783).

TYPES. — The male, 4.0 mm (MNHN-Am 4782) is the holotype. The female and juvenile are paratypes.

TYPE LOCALITY. — South of the Isle of Pines, New Caledonia, 22°52.7'S, 167°23'E, 555 to 616 m.

DIAGNOSIS. — Eyes apparently absent. Maxilla 1: palp 1-articulate. Antenna 1: peduncular article 1 produced dorsodistally. Peraeopod 5: basis slightly expanded posteriorly. Peraeopod 7: merus, anterior and posterior margins subparallel, strongly produced posteroventrally, extending beyond carpus. Uropod 3 biramous.

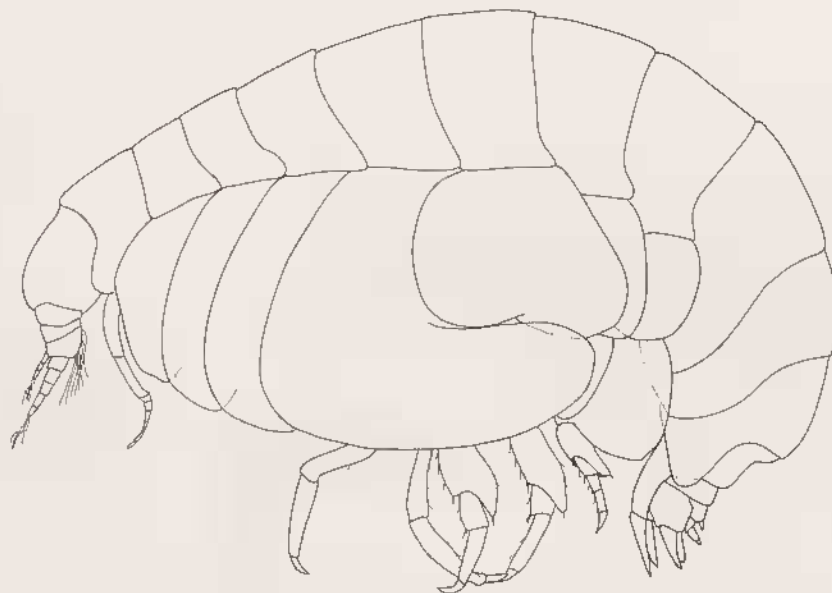


FIG. 22. — *Kerguelenia koutoumo* sp. nov., holotype male, 4.0 mm (MNHN-Am 4782), south of the Isle of Pines, New Caledonia.

DESCRIPTION. — Based on holotype male, 4.0 mm and paratype female 4.2 mm. *Head*: exposed, slightly longer than deep, ventrally truncated with straight ventral margin; lateral cephalic lobe small, narrowly rounded; rostrum absent; eyes apparently absent. *Antenna 1*: medium length, 0.2 times body; peduncular article 1 short, length 1.3 times breadth, without dorsal crest or tooth on distomedial margin, with anterodistal lobe reaching halfway along article 2; peduncular article 2 short, 0.27 times article 1, without anterodistal projection; peduncular article 3 long, 0.23 times article 1; accessory flagellum long, 0.56 times primary flagellum 3- to 4-articulate, article 1 long, 2 times article 2 (male long, 2.2 times article 2); flagellum 5-articulate (male 6), without callynophore in female (strong 1-field in male). *Antenna 2*: subequal in length to antenna 1 (same in male); peduncle without brush setae in female or male, male weakly geniculate between peduncular articles 3-4, article 3 short, 0.52 times article 4; flagellum well developed, 5-articulate in male.

Mouthpart bundle: subquadrate. *Epistome and upper lip*: fused, straight. *Mandible*: incisors absent; laciniae mobilis absent; molar absent; mandibular palp attached extremely distally; article 1 short, length 0.73 times breadth; article 2 broad, length 3.2 times breadth, 1.2 times article 3, with 8 submarginal posterodistal A2-setae, without D2-setae; article 3 slender, blade-like, long, length 3.6 times breadth, without proximal A3-setae, with 11-14 D3-setae along most of posterior margin and 2 apical E3-setae. *Maxilla 1*: inner plate absent; outer plate narrow, with 5 spine-teeth in modified 7/4 arrangement; outer row with ST1 to ST3 small, stout, weakly cuspidate, ST4-ST5 absent, ST6 small, stout, 5-cuspidate, ST7 slightly displaced from ST6, small, stout, 2-cuspidate; inner row with STA-STD absent; palp large, 1-articulate, with smooth apical margin, with 2 subterminal setae, flag spine absent, distomedial margin smooth. *Maxilla 2*: inner and outer plates narrow; inner plate about 0.5 times length outer plate. *Maxilliped*: inner plate small, subrectangular, with 1 apical nodular spine, oblique setal row absent; outer plate vestigial, subrectangular, without apical setae or spines, with 1 apical

tooth, without medial spines, submarginal setae long, simple; palp large, 4-articulate; article 2 broad, length 1.7 times breadth, 1 times article 3; article 3 long, broad, length 1.8 times breadth; dactylus well developed, with 2 subterminal setae, unguis absent.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa large, slightly shorter than coxa 2, tapering, anterior margin slightly convex, anteroventral corner rounded, posterior margin straight; basis long, slender, length

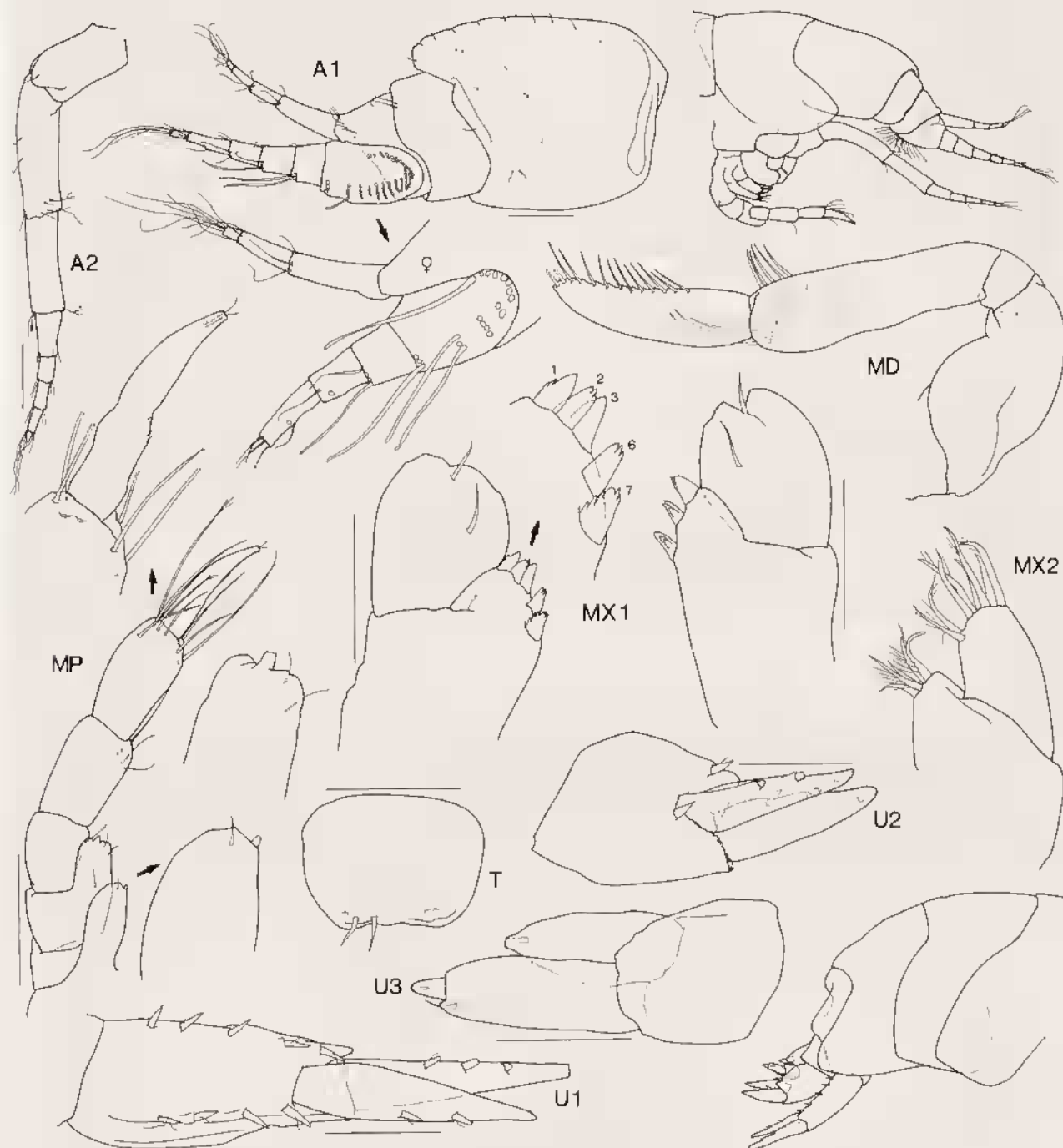


FIG. 23. — *Kerguelenia koutoumo* sp. nov., holotype male, 4.0 mm (MNHN-Am 4782); paratype female, 4.2 mm (MNHN-Am 4783); south of the Isle of Pines, New Caledonia. Scales for MX1, MX2, U3, T represent 0.05 mm, remainder represent 0.1 mm.

5 times breadth, anterior margin smooth, with simple setae; ischium long, length 3.1 times breadth; merus, posterior margin with a few simple setae; carpus subrectangular, very long, length 5.5 times breadth and 1 times, without denticulate patch near posterodistal margin; propodus large, subrectangular, length 7 times breadth, margins subparallel, posterior margin smooth, slightly concave, with setae, without denticulate patch near posterior margin, palm absent; dactylus simple, with large plumose seta. *Gnathopod 2* : minutely chelate; coxa

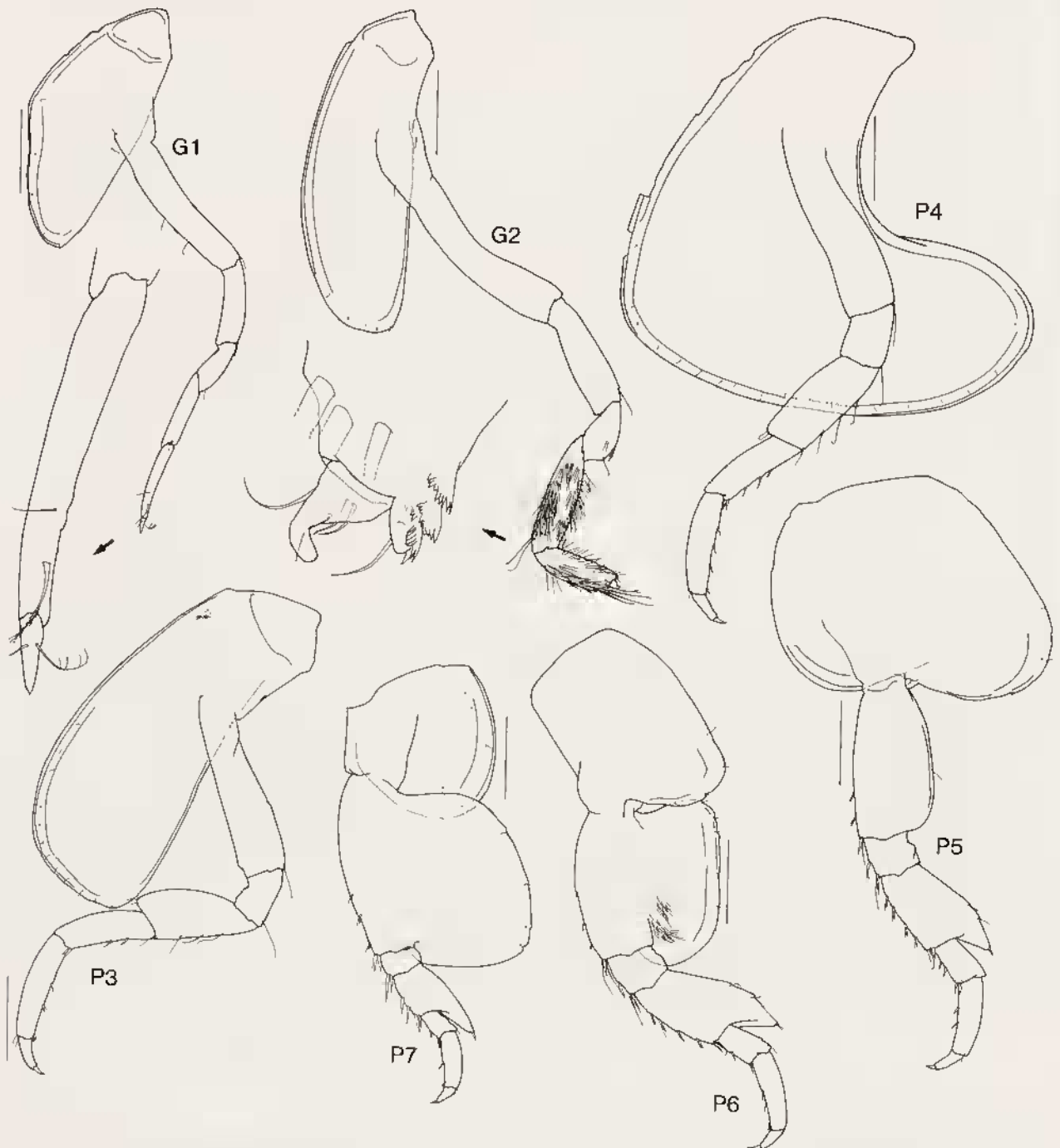


FIG. 24. — *Kerguelenia koutoumo* sp. nov., holotype male, 4.0 mm (MNHN-Am 4782), south of the Isle of Pines, New Caledonia. Scales represent 0.1 mm.

large, subequal in size to coxa 3; ischium long, length 3.1 times breadth; carpus long, length 3.7 times breadth, posterior margin straight; propodus subrectangular, long, length 2.7 times breadth, palm obtuse, with convex, smooth margin, posterodistal corner without spines; dactylus over-reaching corner of palm, posterior margin smooth.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly; propodus with 2 spines and 2 distal spines along posterior margin; dactylus short, stocky. *Peraeopod 4* : coxa wider than deep, with very large posteroventral lobe, anterior margin rounded, posterior margin of lobe evenly rounded; merus weakly expanded anteriorly; propodus with 3 spines and 1 distal spine along posterior margin; dactylus short, stocky. *Peraeopod 5* : coxa bilobate, posterior lobe produced distoventrally; basis slightly expanded posteriorly, without posteroventral lobe; merus expanded, posterior margin rounded, produced distally along carpus; propodus with 2 spines along anterior margin; dactylus short, stocky. *Peraeopod 6* : coxa large, not lobate posteriorly; basis expanded posteriorly with smooth posterior margin, without anteroventral lobe; merus expanded, posterior margin rounded, produced distally along carpus; propodus with 2 spines and 2 distal spines along anterior margin; dactylus short, stocky. *Peraeopod 7* : basis expanded posteriorly, posterior margin almost straight, smooth, posteroventral corner rounded, posteroventral margin rounded; merus expanded, anterior and posterior margins subparallel, produced posterodistally beyond carpus; propodus with 1 spine and 2 distal spines along anterior margin and 2 setae along posterior margin; dactylus short, stocky.

Oostegites : on peraeopods 4 and 5 (buds). *Gills* : from gnathopod 2 to peraeopod 6, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 3* : posteroventral corner produced, narrowly rounded. *Urosomites* : urosomite 1 with anterodorsal notch. *Uropod 1* : peduncle with 4 dorsolateral, 1 apicolateral, 3 dorsomedial and 1 apicomедial spines; outer ramus slightly longer than inner ramus, outer ramus with 3 dorsal spines; inner ramus with 2 dorsal spines. *Uropod 2* : peduncle with large dorsolateral flange, with 1 apicolateral and 1 apicomедial spines, without spines along distal margin; outer ramus slightly longer than inner ramus, outer ramus with 2 dorsal spines; inner ramus with 2 dorsal spines, without constriction. *Uropod 3* : peduncle well developed, short, length 1.1 times breadth, without dorsolateral flange, without dorsal spines, without midlateral spines or setae, without distoventral spines; biramous, rami lanceolate, inner ramus reduced, about 0.63 times outer ramus, outer ramus 2-articulate, article 2 short, rami without spines. *Telson* : shorter than broad, length 0.73 times breadth, entire, without dorsal setae, distal margin emarginate, with 5-6 marginal penicillate setae, without simple marginal setae or marginal spines.

ETYMOLOGY. — Named for Koutoumo, the island nearest the type locality.

REMARKS. — *Kerguelenia koutoumo* is compared to species with biramous third uropods, such as *K. adeliensis*, the *K. borealis* complex, *K. microphthalmia* and *K. palpalis*. It differs from *K. adeliensis* by the less rounded basis and greatly extended merus of peraeopod 7. It differs from the other three species by not having a posteroventral lobe on the basis of peraeopod 5. *Kerguelenia koutoumo* is easily distinguished from *K. lifou* by the propodus of peraeopods 3 to 7 which are more spinose, not setose, uropods 1 to 3 which are more spinose and uropod 3 which has well developed rami.

DISTRIBUTION. — *Kerguelenia koutoumo* is known from southern New Caledonia, in 580 m depth.

Kerguelenia lifou sp. nov.

Figs 25-27

MATERIAL EXAMINED. — Loyalty Islands. BIOGEOCAL : stn CP 373, 21°01.53'S, 166°57.41'E, south-west of Point Lefèvre, Lifou, 1920-2040 m, 20 April 1987 : 1 ♀ 4.4 mm (MNHN-Am 4459).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — South-east of Point Lefèvre, Lifou, Loyalty Islands, 21°01.53'S, 166°57.41'E, 1920 to 2040 m.

DIAGNOSIS. — Eyes apparently absent. Maxilla 1 : palp 2-articulate. Antenna 1 : peduncular article 1 not produced dorsodistally. Peraeopod 5 : basis slightly expanded posteriorly. Peraeopod 7 : merus expanded posterodistally with slightly convex posterodistal margin, strongly produced posteroventrally, extending beyond carpus. Uropod 3 uniramous.

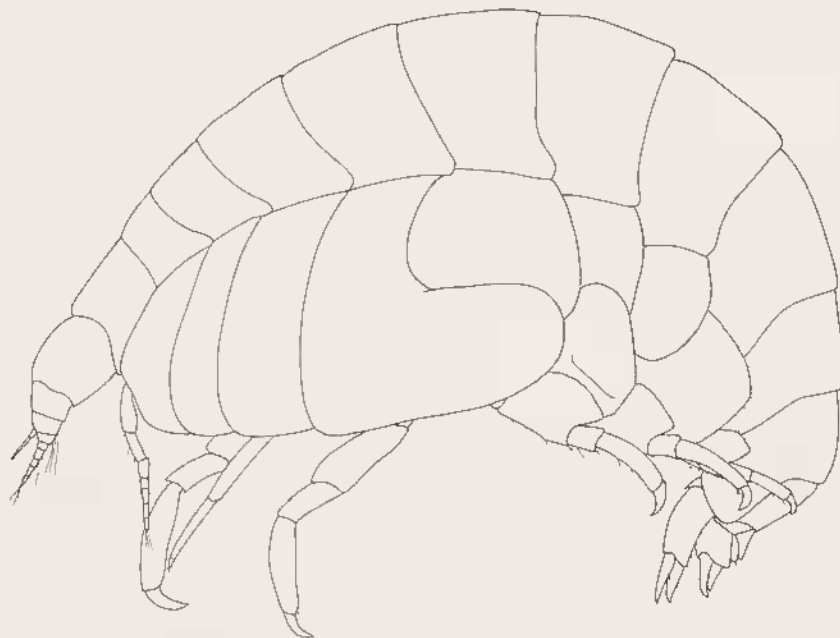


FIG. 25. — *Kerguelenia lifou* sp. nov., holotype female, 4.4 mm (MNHN-Am 4459), south-west of Point Lefevre, Lifou, Loyalty Islands.

DESCRIPTION. — Based on holotype female, 4.4 mm; male not known. *Head* : exposed, slightly longer than deep, ventrally truncated with straight ventral margin; lateral cephalic lobe small, narrowly rounded; rostrum absent; eyes apparently absent. *Antenna 1* : short, 0.15 times body; peduncular article 1 short, length 1.2 times breadth, without dorsal crest, without tooth on distomedial margin, without anterodistal projection; peduncular article 2 short, 0.38 times article 1, without anterodistal projection; peduncular article 3 long, 0.34 times article 1; accessory flagellum long, 0.55 times primary flagellum, 3-articulate, article 1 short, 1.3 times article 2; flagellum 6- to 7-articulate, without callynophore in female. *Antenna 2* : slightly longer than antenna 1; peduncle without brush setae, female weakly geniculate between peduncular articles 3-4, article 3 long, 0.78 times article 4; flagellum well developed, 6-articulate, without thick setal brush.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : fused, straight. *Mandible* : incisors absent; laciniae mobilis absent; molar absent; mandibular palp attached extremely distally; article 1 short, length 1 times breadth; article 2 slender, length 5.9 times breadth, 1.7 times article 3, with 2 submarginal posterodistal A2-setae, without D2-setae; article 3 slender, blade-like, long, length 4 times breadth, without proximal A3-setae, with 4 distal D3-setae and 1 apical E3-setae. *Maxilla 1* : inner plate absent; outer plate narrow, with 5 spine-teeth in modified 7/4 arrangement; outer row with ST1 to ST3 small, stout, weakly cuspidate, ST4-ST5 absent, ST6 small, stout, 2-cuspidate, ST7 slightly displaced from ST6, small, stout, 2-cuspidate; inner row with STA-STD absent; palp large, 2-articulate, with 1 long terminal spine, with 1 subterminal seta, flag spine present on distolateral corner, medial margin finely setose. *Maxilla 2* : inner and outer plates narrow. *Maxilliped* : inner plate small, apical setae, without apical spines, with 1-2 apical teeth, without medial spines, submarginal setae long, simple; palp large, 4-articulate; article 2 slender, length 2.3 times breadth, 1 times article 3; article 3 very long, slender, length 2.8 times breadth; dactylus well developed, with 1 subterminal seta, unguis absent.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa large, as long as coxa 2, anterior margin slightly convex, anteroventral corner rounded, posterior margin straight; basis long, slender, length 4.4 times breadth, anterior margin smooth, with simple setae; ischium very long, length 4.7 times breadth; merus, posterior margin with a few simple setae; carpus subrectangular, very long, length 4.2 times breadth and 1 times propodus, without denticulate patch near posterodistal margin; propodus large, subtriangular, length 4.9 times breadth, margins slightly converging distally, posterior margin smooth, subtly sinusoidal, with setae, without denticulate patch near posterior margin, palm absent; dactylus simple, with large plumose seta. *Gnathopod 2* : minutely chelate; coxa large, subequal in size to coxa 3; ischium long, length 3.8 times breadth; carpus long, length 3.3 times breadth, posterior margin straight; propodus subrectangular, long, length 2 times breadth, palm obtuse, with straight, serrate margin, posterodistal corner without spines; dactylus over-reaching corner of palm, posterior margin serrate.

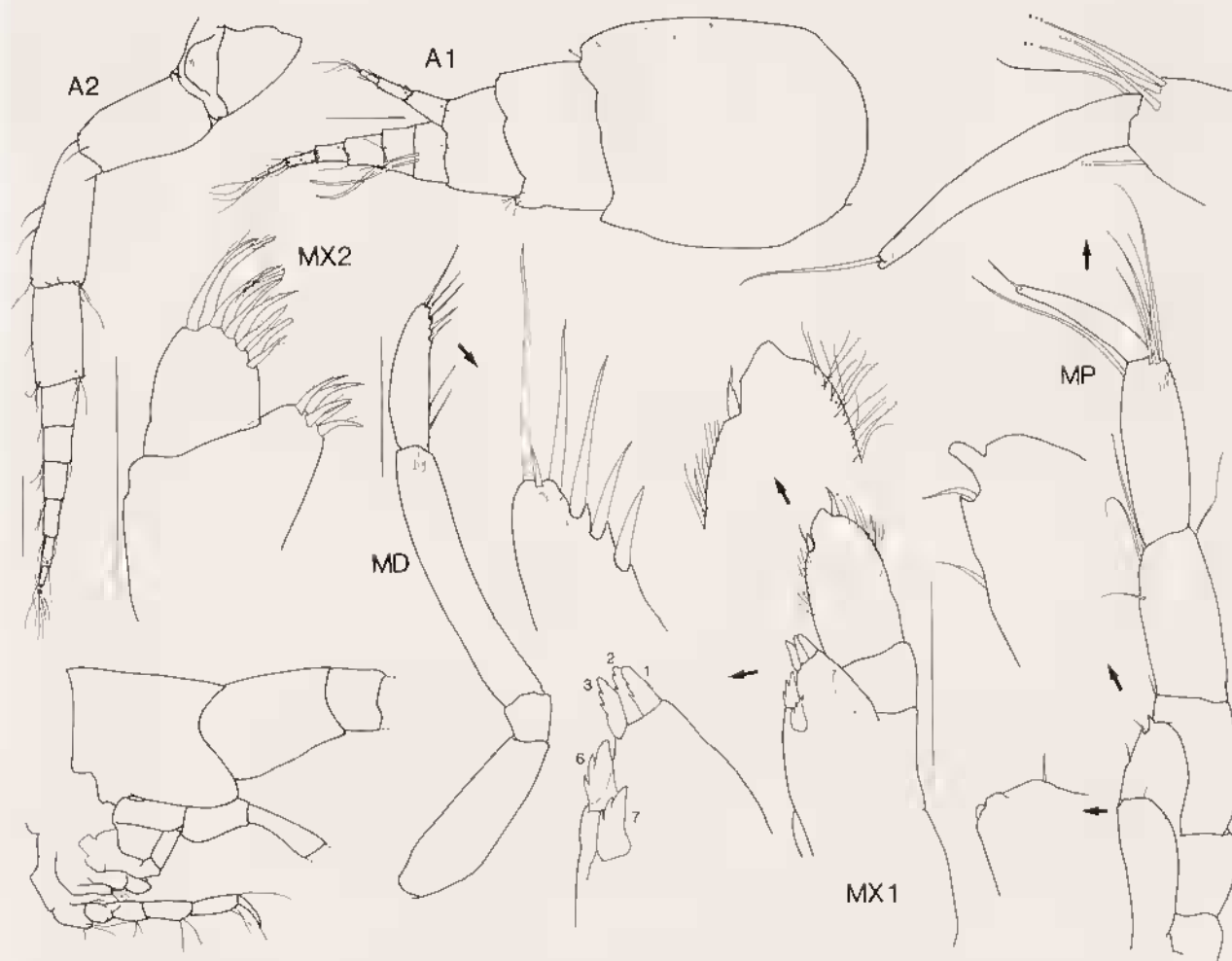


FIG. 26. — *Kerguelenia lifou* sp. nov., holotype female, 4.4 mm (MNHN-Am 4459), south-west of Point Lefèvre, Lifou, Loyalty Islands. Scales represent 0.1 mm.

Peraeopod 3 : coxa large; merus slightly expanded anteriorly; propodus with 1 seta and 1 distal spine along posterior margin; dactylus short, stocky. *Peraeopod 4* : coxa wider than deep, with very large posteroventral lobe, anterior margin rounded, posterior margin of lobe evenly rounded; merus weakly expanded anteriorly; propodus with 3 setae and 1 distal spine along posterior margin; dactylus short, stocky. *Peraeopod 5* : coxa bilobate, posterior lobe strongly produced ventrally; basis slightly expanded posteriorly, without posteroventral lobe; merus

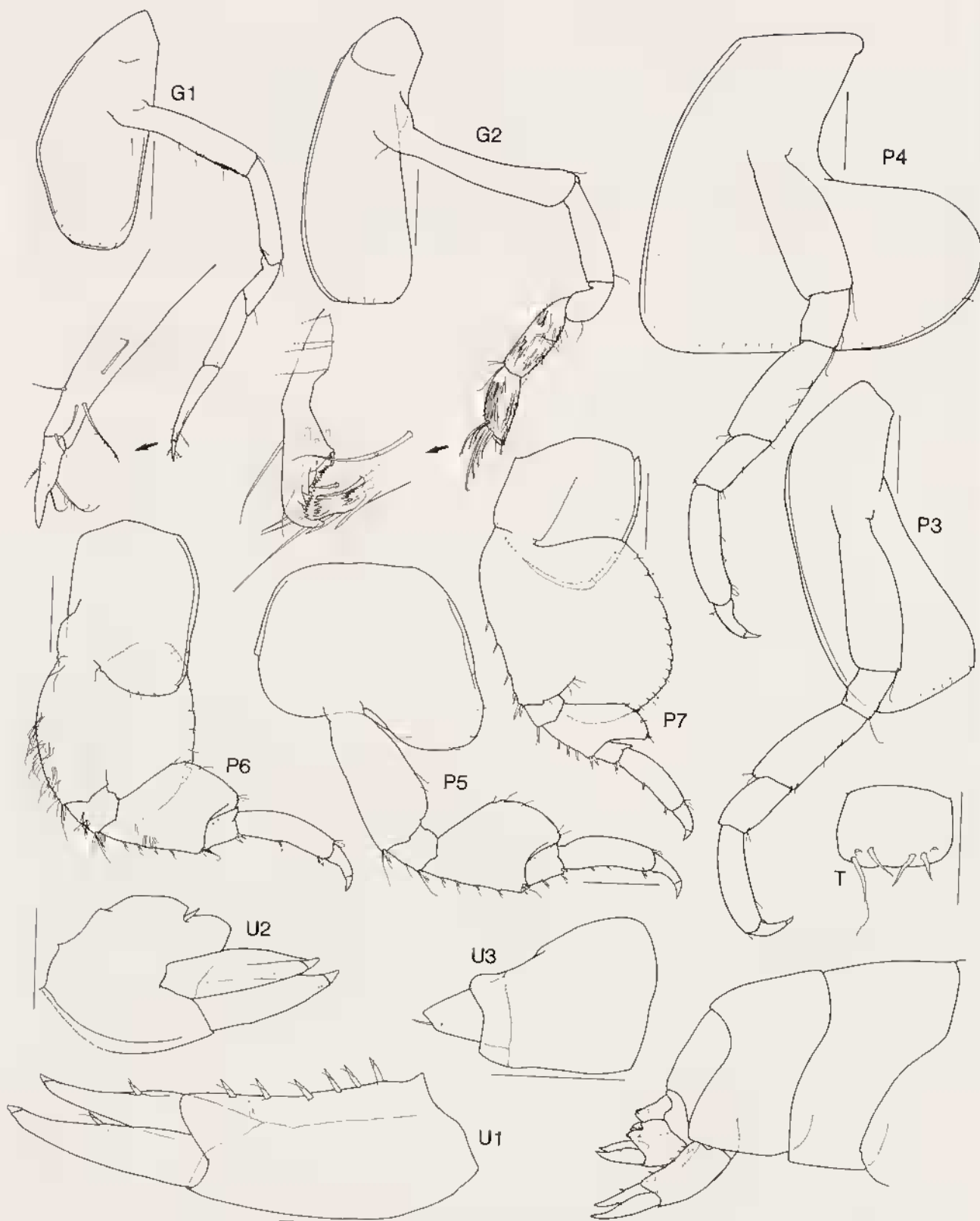


FIG. 27. — *Kerguelenia lifou* sp. nov., holotype female, 4.4 mm (MNHN Am 4459), south-west of Point Lefèvre, Lifou, Loyalty Islands. Scales for U3, T represent 0.05 mm, remainder represent 0.1 mm.

broadly expanded with sloping posterior shoulder and straight posterior margin; propodus with 2 spines and 2 distal spines along anterior margin; dactylus short, stocky. *Peraeopod 6* : coxa large, not lobate posteriorly; basis expanded posteriorly with smooth posterior margin, without anteroventral lobe; merus broadly expanded with sloping posteroproximal shoulder and straight posterior margin; propodus with 1 spine and 2 distal spines along anterior margin; dactylus short, stocky. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus distally expanded, slightly convex posterior margin with 4 setae; propodus with 1 spine and 2 distal spines along anterior margin and 2 setae along posterior margin; dactylus short, stocky.

Oostegites : on peraeopod 5 only (bud). *Gills* : from gnathopod 2 to peraeopod 6, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 3* : posteroventral corner subquadrate. *Urosomites* : dorsally smooth. *Uropod 1* : peduncle with 6 dorsolateral and 1 apicomedial spines; outer ramus slightly longer than inner ramus, outer ramus with 1 dorsal spine; inner ramus with 1 dorsal spine. *Uropod 2* : peduncle with large dorsolateral flange, with 1 dorsolateral spine, without spines along distal margin; outer ramus slightly longer than inner ramus, outer ramus with 1 dorsal spine; inner ramus without spines, without constriction. *Uropod 3* : peduncle well developed, short, length 1.2 times breadth, without dorsolateral flange, without dorsal spines, midlateral spines or setae or distoventral spines; uniramous, ramus 1-articulate, without spines. *Telson* : shorter than broad, length 0.67 times breadth, entire, without dorsal setae, distal margins truncated, with 6 marginal penicillate setae, without simple marginal setae or marginal spines.

ETYMOLOGY. — Named for the island of Lifou in the Loyalty Islands.

REMARKS. — Compared to other species with uniramous third uropods *K. lifou* differs from *K. eoa* and *K. glacialis* in having a slightly expanded linear basis on peraeopod 5 without a posteroventral lobe. It further differs from *K. glacialis* in not having a produced posteroventral corner on epimeron 3. It is remarkably similar to *K. compacta*, but *K. compacta* has well defined eyes and the merus on peraeopods 5 to 7 is less expanded posteriorly. *Kerguelenia antarctica* has a dorsodistal lobe on the first peduncular article of antenna 1 and *K. macropoda* has an enormously expanded and distally produced basis on peraeopod 7.

DISTRIBUTION. — *Kerguelenia lifou* is known from the Loyalty Islands Basin, South-West Pacific Ocean, in 1920 to 2040 m depth.

Genus *LEPIDEPECREELLA* Schellenberg, 1926a

Lepidepecreella Schellenberg, 1926a : 281. — STEPHENSEN, 1931 : 6; 1935 : 101. — J.L. BARNARD, 1966 : 68; 1969 : 347. — LEDOYER, 1986 : 774. — BARNARD & KARAMAN, 1991 : 494.

Paracyclocharis K.H. Barnard, 1930 : 321 (type species : *Paracyclocharis bidens* K.H. Barnard, 1930, originat designation).

DIAGNOSIS. — Head deeper than long with well developed anterior keel. Mouthparts subconical. Maxilla 1 : outer plate with 11 spine-teeth in a 7/4 arrangement. Gnathopod 1 : simple, slender, elongate, attenuate with coxa vestigial. Gnathopod 2 : coxa vestigial. Telson short, entire.

TYPE SPECIES. — *Lepidepecreella ctenophora* Schellenberg, 1926, by monotypy.

SPECIES COMPOSITION. — *Lepidepecreella* contains 9 species : *L. bidens* (K.H. Barnard, 1930); *L. charuo* J.L. Barnard, 1966; *L. ctenophora* Schellenberg, 1926a; *L. cymba* (Goes, 1866); *L. emarginata* Nicholls, 1938; *L. ovalis* K.H. Barnard, 1932; *L. pamanzi* Ledoyer, 1986; *L. sarcelle* sp. nov. and *L. tridactyla* Bellan-Santini, 1972.

DISTRIBUTION. — *Lepidepecreella* is mainly a bipolar genus (tropically submergent in bathyal basins) occurring down to 2500 m depth.

Lepidepecreella sarcelle sp. nov.

Figs 28-29

MATERIAL EXAMINED. — New Caledonia, BIOCAL : stn CP 75, 22°18.65'S, 167°23.30'E, north of the Isle of Pines, 825-860 m, 4 September 1985 : 1 specimen, sex not known, 3+ mm (incomplete) (MNHN-Am 4383).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — North of the Isle of Pines, New Caledonia, 22°8.65'S, 167°23.30'E, 825 to 860 m.

DIAGNOSIS. — Gnathopod 1 : dactylus without convex posterior margin. Gnathopod 2 : palm slightly obtuse with serrate margin. Peraeopod 5 : basis with weakly developed posterodistal lobe.

DESCRIPTION. — Based on holotype, sex not known. *Head* : exposed, much deeper than long, extending well below insertion of antenna 2 with notch at level of insertion; lateral cephalic lobe small, subacute; rostrum small; eyes oval. *Antenna 1* : short; peduncular article 1 medium, length 1.5 times breadth, without dorsal crest, midmedial swelling or anterodistal projection; peduncular article 2 short, 0.36 times article 1, without anterodistal projection; peduncular article 3 long, 0.24 times article 1; accessory flagellum long, 0.61 times primary flagellum, 5-articulate, article 1 long, 2 times article 2; flagellum 7-articulate, with strong 2-field calynophore, without setae or spines. *Antenna 2* : subequal in length to antenna 1; peduncle without brush setae, weakly geniculate between peduncular articles 3-4, article 3 short, 0.37 times article 4; flagellum well developed, 7-articulate, without thick setal brush.

Mouthpart bundle : subconical. *Epistome* and *upper lip* : fused, forming a strongly projecting subacute tooth between antennae 1 and 2. *Mandible* : incisors symmetrical, small, with slightly convex margins; left lacinia mobilis present, a cuspidate peg; molar vestigial; mandibular palp attached proximally; article 1 short, length 1.25 times breadth; article 2 slender, length 3 times breadth, 0.78 times article 3, without A2-setae or D2-setae; article 3 falcate, strongly tapering distally, long, length 3.9 times breadth, without proximal A3-setae, with 6 proximal D3-setae and 1 apical E3-seta. *Maxilla 1* : inner plate narrow without apical setae; outer plate broad with 11 spine-teeth in 7/4 arrangement; outer row with ST1 to ST3 small, stout, multicuspitate, ST4-ST5 small, stout, 6-cuspidate, ST6 small, stout, 4-cuspidate, ST7 contiguous with ST6, small, shorter than ST6, slender, 5-cuspidate medially; inner row with STA large, broad, 1-cuspidate, STB-STD small, stout, 2-cuspidate; palp large, 2-articulate, with serrate apical margin, without subterminal setae, flag spine absent, distomedial margin smooth. *Maxilla 2* : inner plate broad, outer plate narrow, inner plate 1 times length outer plate. *Maxilliped* : inner plate very large, subrectangular, with 3 apical nodular spines, oblique setal row reduced with 5 raker spines; outer plate small, subovate, without apical setae, apical spines or apical teeth, without medial spines or submarginal setae; palp large, 4-articulate; article 2 very broad, length 1.5 times breadth, 1.1 times article 3; article 3 short, broad, length 2 times breadth; dactylus well developed, with 1 subterminal seta, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa vestigial; basis long, slender, length 3.8 times breadth, anterior margin smooth, with simple setae; ischium long, length 3.5 times breadth; merus, posterior margin without setae; carpus subrectangular, long, length 3.7 times breadth, shorter than (0.7 times) propodus, without denticulate patch near posterodistal margin; propodus very long, linear, subrectangular, length 5.6 times breadth, margins slightly converging distally, posterior margin smooth, slightly concave, without spines or setae, without denticulate patch near posterior margin, palm absent; dactylus complex, extremely attenuated with distally serrate posterior margin, with long uniserrate spine and short smooth curved spine. *Gnathopod 2* : minutely subchelate; coxa vestigial; ischium long, length 2.5 times breadth; carpus very long, length 4.5 times breadth, posterior margin straight; propodus subrectangular, long, length 3.1 times breadth, palm slightly obtuse, with convex, minutely serrate margin, posterodistal corner with 1 medial spine; dactylus reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus expanded anterodistally along carpus; propodus with 5 spines and 2 distal spines along posterior margin; dactylus long, stocky. *Peraeopod 4* : coxa as deep as wide, with acutely produced posteroventral lobe, anterior margin rounded, posterior margin sloping anteriorly; merus expanded anterodistally

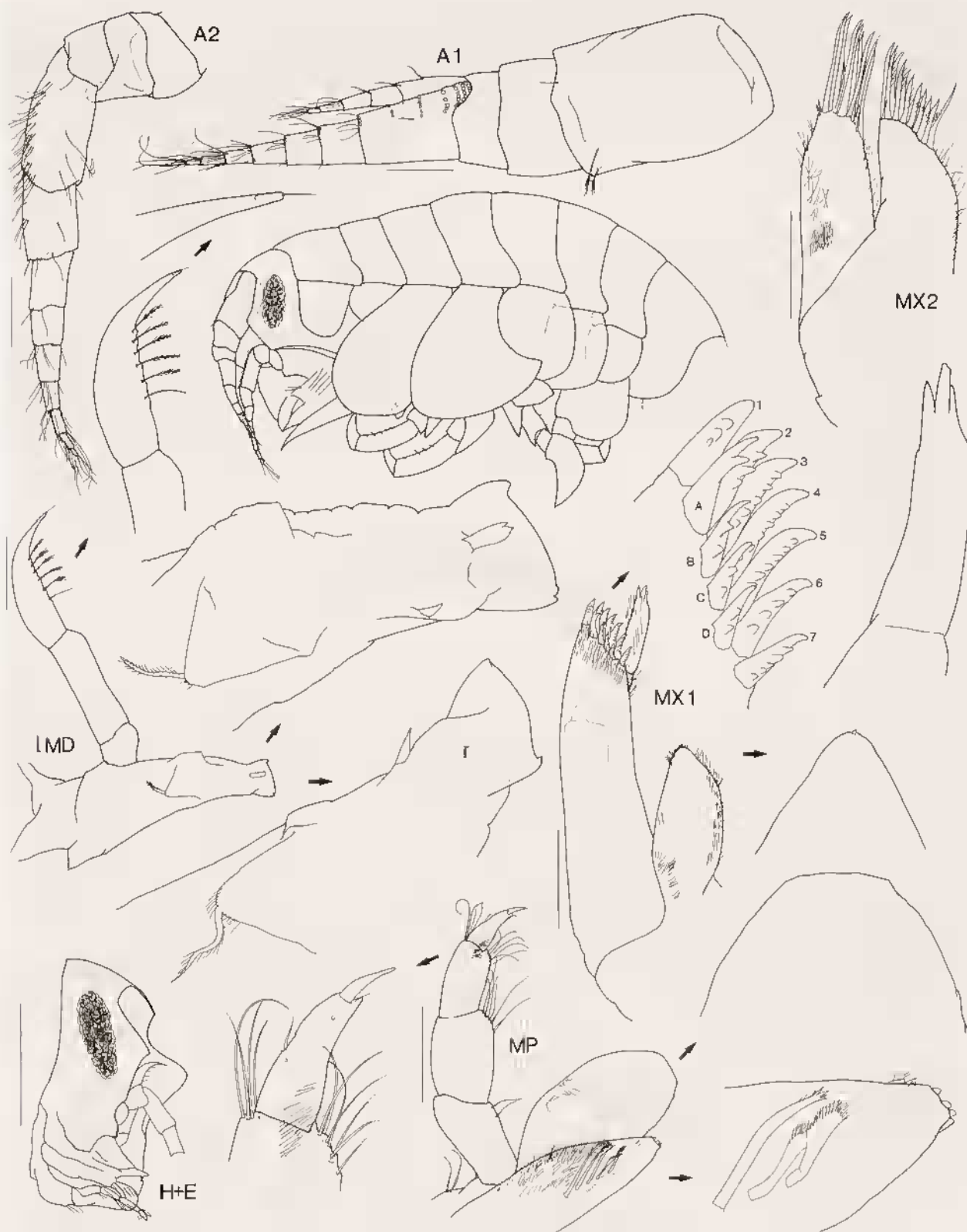


FIG. 28. — *Lepidepecreella sarcelle* sp. nov., holotype, sex not known, 3+ mm (MNHN-Am 4383), north of the Isle of Pines, New Caledonia. Scale for H+E represents 0.5 mm, remainder represent 0.1 mm.

along carpus; propodus with 5 spines and 2 distal spines along posterior margin; dactylus long, stocky. *Peraeopod 5*: coxa bilobate, posterior lobe strongly produced ventrally; basis weakly expanded, posterior margin concave, posteroventral lobe extending along ischium; merus expanded, posterior margin rounded, produced distally along carpus; propodus with 5 spines along anterior margin and 2 distal spines; dactylus long, stocky.

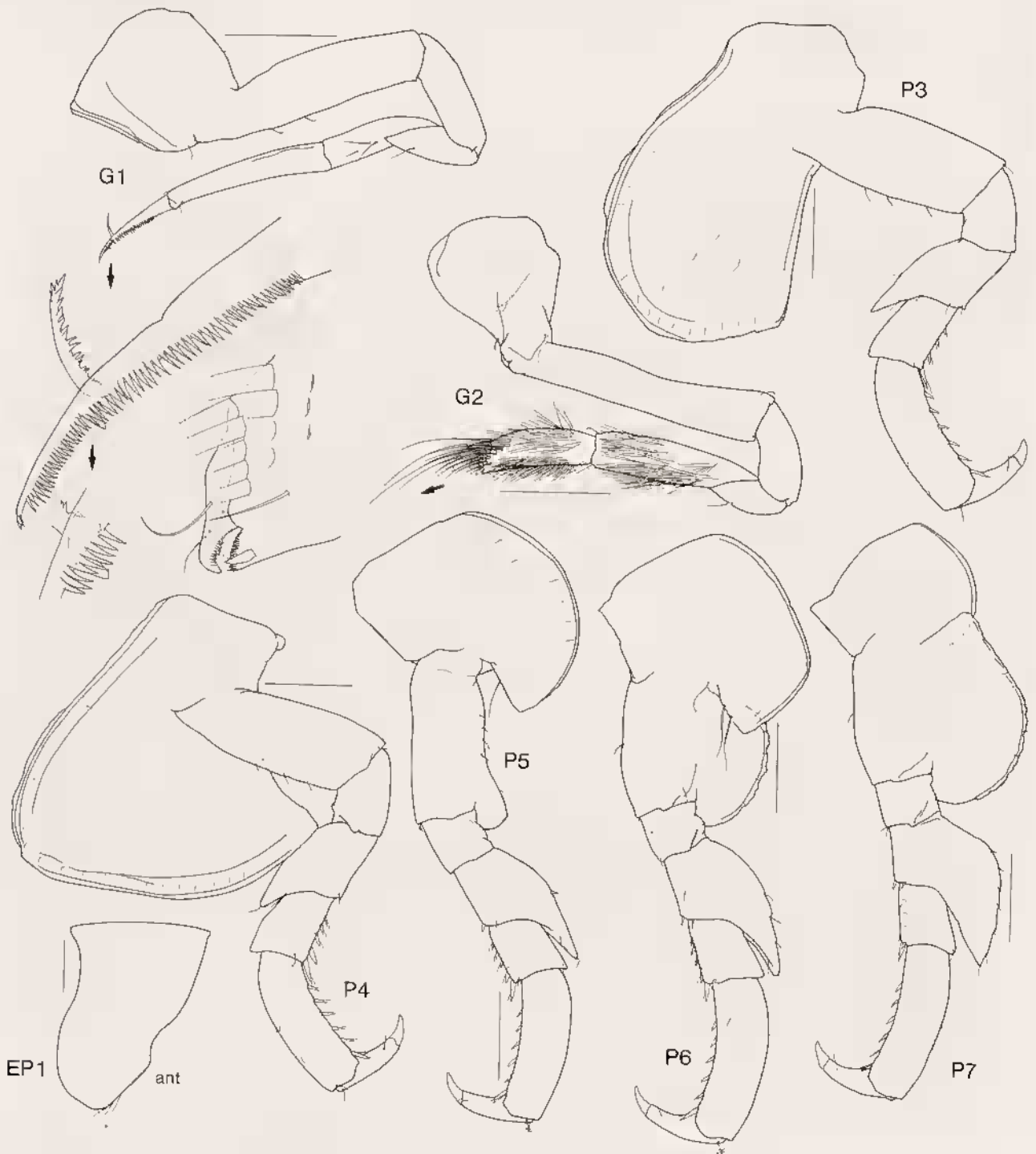


FIG. 29. — *Lepidepecreella sarcelle* sp. nov., holotype, sex not known, 3+ mm (MNHN-Am 4383), north of the Isle of Pines, New Caledonia. Scales represent 0.2 mm.

Peraeopod 6 : coxa small, strongly lobate posteriorly; basis expanded posteriorly with smooth posterior margin, without anteroventral lobe; merus expanded, posterior margin rounded, produced distally along carpus; propodus with 5 spines along anterior margin and 2 distal spines; dactylus long, stocky. *Peraeopod 7* : basis expanded posteriorly, posterior margin almost straight, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus broadly expanded with rounded posteroproximal shoulder and straight posterior margin, produced posterodistally beyond carpus; propodus with 5 spines and 2 distal spines along anterior margin, and 2 setae along posterior margin; dactylus long, stocky.

Gills : from gnathopod 2 to peraeopod 7, not pleated. *Pleonites*, *Urosomites* and *Telson* unknown.

ETYMOLOGY. — Named for the Sarcelle Passage between New Caledonia and the Isle of Pines.

REMARKS. — As J.L. BARNARD (1966) stated, *Lepidepecreella bidens* is the species most distinct from the type species, *L. ctenophora* because of the posteroventral lobe on the basis of peraeopod 5. *Lepidepecreella sarcelle* also has a posteroventral lobe and comes from the same geographic area as *L. bidens*. It is unfortunate that the urosome is missing because it is extremely distinctive in this genus. Nonetheless *L. sarcelle* differs from *L. bidens* as follows : the dactylus of gnathopod 1 does not have an excavate, convex posterior margin; the carpus and propodus of gnathopod 2 are not as long and linear and the palm is slightly obtuse and convex, not concave; the posteroventral lobe on the basis of peraeopod 5 is poorly developed and does not extend past the ischium.

DISTRIBUTION. — *Lepidepecreella sarcelle* is known from southern New Caledonia, in 825 to 860 m depth.

Genus *ONESIMOIDES* Stebbing, 1888

Onesimoides abyssalis sp. nov.

Figs 30-32

MATERIAL EXAMINED. — **Loyalty Islands**. BIOCAL : sin CP 17, 20°34.54'S, 167°24.68'E to 20°34.62'S, 167°25.46'E, north-east of Lifou, 3680 m, 14 August 1985 : 1 ♀, 13.2 mm (MNHN-Am 4426); 1 ♂, 11.5 mm (MNHN-Am 4784); 64 specimens (MNHN-Am 4461); 10 specimens (AM P42140). — Sin CP 72, 22°09.02'S, 167°33.18'E to 22°10.65'S, 167°33.78'E, north-east of Cape Coronation, Loyalty Islands Basin, 2100-2110 m, 4 August 1985 : 1 ♀ (MNHN-Am 4460).

TYPES. — The female (MNHN-Am 4426) is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — North-east of Lifou, Loyalty Islands, 20°34.54'S, 167°24.68'E to 20°34.54'S, 167°24.68'E, 3680 m.

DIAGNOSIS. — Antennae : calceoli present in adult male. Gnathopod 1 : in male with large setal patch on merus and propodus, palm changing with age from transverse to a midpalmar tooth and posterior cavity. Pleonite 3 without dorsal carina. Urosomite 1 without lateral flange. Epimeron 3 : posteroventral corner narrowly rounded. Uropod 3 : inner ramus about 0.6 times outer ramus.

DESCRIPTION. — Based on holotype female, 13.2 mm, MNHN-Am 4426; paratype male, 11.5 mm, MNHN-Am 4784. *Head* : exposed, deeper than long; lateral cephalic lobe large, broadly rounded; rostrum absent; eyes apparently absent. *Antenna 1* : medium length; peduncular article 1 short, length about 1.2 times breadth; peduncular article 2 short, 0.38 times article 1; peduncular article 3 long, 0.34 times article 1; accessory flagellum medium length, 0.47 times primary flagellum, 4-articulate, article 1 long, 8.5 times article 2 (male long, 7.6 times article 2), forming cap covering callynophore; flagellum 16-articulate (male 14), with strong 2-field callynophore in female and male, without flagellar spines, calceoli absent (present in adult male, 2). *Antenna 2* : slightly longer than antenna 1 (same in male); peduncle without brush setae (same in male), weakly geniculate between peduncular articles 3-4, article 3 short, 0.40 times article 4 (male weakly geniculate between peduncular

articles 3-4, article 3 short, 0.3 times article 4), peduncular articles 4 and 5 not enlarged in male or female; flagellum well developed, 16-articulate (male 12), without thick setal brush, calceoli absent in female (4 present in adult male).

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate; epistome slightly convex; upper lip slightly produced, rounded. *Mandible* : incisors symmetrical, small, with slightly convex margins; left lacinia

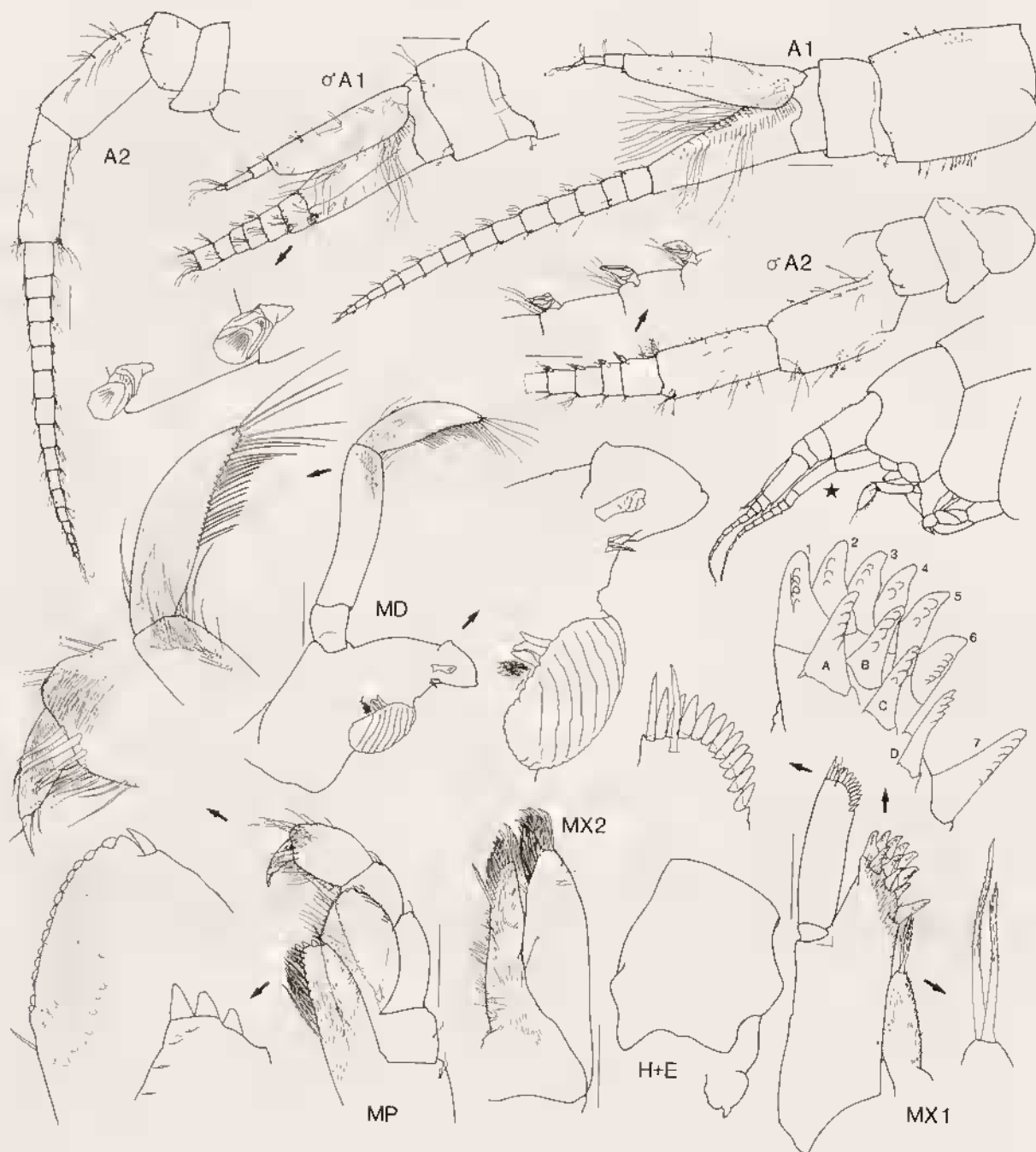


FIG. 30. — *Onesimoides abyssalis* sp. nov., holotype female, 13.2 mm (MNHN-Am 4426); paratype male, 11.5 mm (MNHN-Am 4461); female, 11.5 mm (MNHN-Am 4461); north-east of Lifou, Loyalty Islands. Scales represent 0.2 mm.

mobilis present, a cuspidate peg; accessory spine row without distal setal tuft, left and right row each with 3 short, thin, simple spines, without intermediate setae; molar with reduced column and convex triturating surface; mandibular palp attached midway; article 1 short, length 1.1 times breadth; article 2 slender, length 4.1 times breadth, 1.3 times article 3, with 20 submarginal posterodistal A2-setae (male 14), without B2-setae or D2-setae; article 3 falcate, long, length 3.4 times breadth, with 2 (male 2) proximal A3-setae, without B3-setae, with 19 (male 21) D3-setae along most of posterior margin and 3 apical E3-setae. *Maxilla 1* : inner plate narrow with 2 plumose apical setae, outer seta without denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, multicuspitate, ST4 large, stout, 2-cuspidate, ST5 large, stout, 3-cuspidate, ST6 large, stout, 6-cuspidate, ST7 slightly displaced from ST6, large, broad, 6-cuspidate; inner row with STA large, slightly displaced from STB-STD, 4-cuspidate, STB-STC large, broad, 4-cuspidate, STD long, slender, 4-cuspidate; palp large, 2-articulate, with 11 long terminal spines, with 1 subterminal seta, flag spine present on distolateral corner, distomedial margin smooth. *Maxilla 2* : inner plate narrow, outer plate broader, inner plate 1 times length outer plate. *Maxilliped* : inner plate very large, subrectangular, with 3 apical nodular spines, with 1 distal spine on lateral face near inner margin, oblique setal row strong with 11 plumose setae; outer plate small, subovate, without subapical notch, with many fine apical setae, with 1 apical spine, medial spines present, small, submarginal setae long, simple; palp large, 4-articulate; article 2 broad, length 1.6 times breadth, 1.3 times article 3; article 3 short, broad, length 1.5 times breadth; dactylus well developed, with 4 subterminal setae, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : sexually dimorphic; female, chelate; coxa reduced, anterior margin slightly concave, anteroventral corner rounded, posterior margin slightly concave; basis long, slender, length 3 times breadth, anterior margin smooth, with simple setae; ischium long, length 1.8 times breadth; merus, posterior margin lined with long simple setae; carpus subtriangular, short, length 1.5 times breadth, shorter than (0.7 times) propodus, without denticulate patch near posterodistal margin; propodus large, subrectangular, length 1.9 times breadth, margins subparallel, posterior margin smooth, strongly sinusoidal, with 7 groups of setae, without denticulate patch near posterior margin, palm obtuse, margin convex, smooth, posterodistal corner with 1 medial and 1 lateral spines; dactylus simple, with subterminal tooth. *Gnathopod 1* in male, subchelate; basis long, slender, length 3.1 times breadth; merus with large brush of setae on medial face; carpus subtriangular, short, length 1.2 times breadth, shorter than (0.61 times) propodus; propodus massive, subrectangular, length 1.6 times breadth, slightly tapering distally, posterior margin smooth, convex, with dense brush of setae on medial face, palm transverse anteriorly and posteriorly with large vertical step medially, smooth, posterodistal corner with 1 medial and 1 lateral spines; dactylus simple, without subterminal teeth or spines. *Gnathopod 2* : minutely chelate; coxa intermediate in size between coxa 1 and coxa 3; ischium long, length 2.4 times breadth; carpus long, length 2.6 times breadth, posterior margin broadly lobate; propodus subquadrate, short, length 1.3 times breadth, posterior margin without strong distal spines, palm obtuse, with straight, serrate margin, posterodistal corner with 1 (male 1) medial spine; dactylus reaching corner of palm, posterior margin rugose.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly, male and female merus-carpus without plumose setae; propodus with 8 spines and 2 distal spines along posterior margin; dactylus short, stocky. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus weakly expanded anteriorly, male and female merus-carpus without plumose setae; propodus with 9 spines and 2 distal spines along posterior margin; dactylus short, stocky. *Peraeopod 5* : coxa equilobate; basis expanded with posterior margin minutely crenate; merus expanded with rounded posterior margin; propodus with 6 setae and 2 distal spines along anterior margin; dactylus short, stocky. *Peraeopod 6* : coxa small, slightly lobate posteriorly; basis expanded posteriorly with minutely crenate posterior margin, basis and ischium with anteroventral lobe; merus expanded with rounded posterior margin; propodus with 6 setae and 2 distal spines along anterior margin; dactylus short, stocky. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus expanded posterodistally with straight posterior margin; propodus with 5 spines and 2 distal spines along anterior margin and 2 setae and 4 distal setae along posterior margin; dactylus short, stocky.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 6, not pleated.

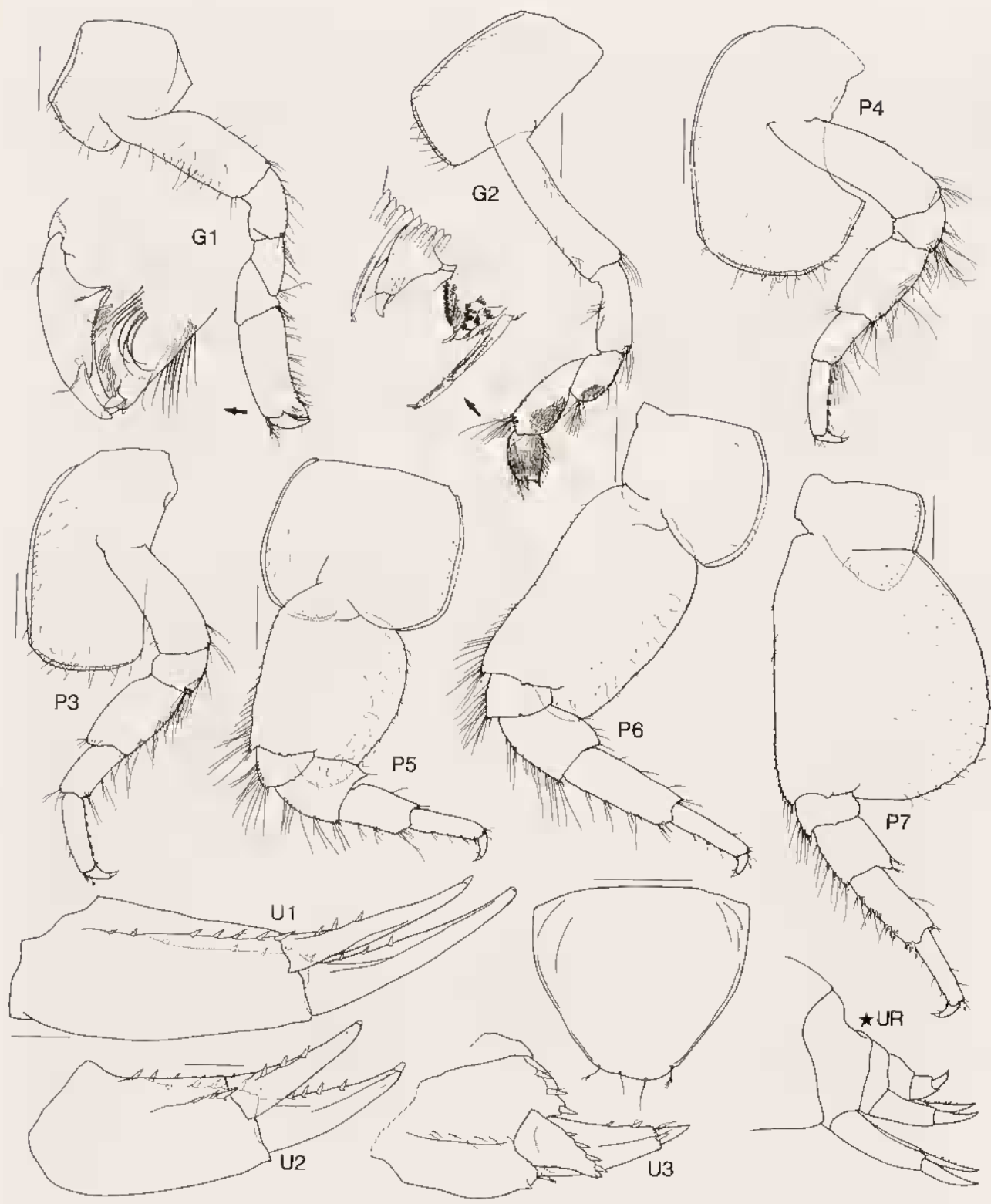


FIG. 31. — *Onesimoides abyssalis* sp. nov., holotype female, 13.2 mm (MNHN-Am 4426); female, 11.5 mm (MNHN-Am 4461); north-east of Lifou, Loyalty Islands. Scales for U1-3, T represent 0.2 mm, remainder represent 0.5 mm.

Pleonite 3 dorsally smooth, without dorsal carina. *Epimeron 1* : anteroventral corner rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : urosomite 1 with anterodorsal notch and low rounded boss, without dorsal carina, without lateral flange; urosomite 3 without small dorsolateral spine. *Uropod 1* : peduncle with 3 dorsolateral, 1 apicolateral, 6 dorsomedial and 1 apicomedial spines; outer ramus slightly longer than inner ramus, outer ramus with 3 dorsal spines; inner ramus with 3 dorsal spines. *Uropod 2* : peduncle without dorsolateral flange, with 7 dorsolateral, 1 apicolateral, 2 dorsomedial and 1 apicomedial spines; rami subequal in length, outer ramus with 4 dorsal spines; inner ramus with 3 dorsal spines, without constriction. *Uropod 3* : peduncle well developed, short, length 1.2 times breadth, with dorsolateral flange, with 2 dorsolateral and 1 apicolateral spines, with 7 midlateral setae and 2 distoventral spines; biramous, rami lanceolate, inner ramus reduced, about 0.6 times outer ramus, outer ramus 2-articulate, article 2 short, article 1 with 2 lateral and 1 medial spines; inner ramus with 4 lateral spines, plumose setae absent in female (absent in male). *Telson* : shorter than broad, length 0.9 times breadth, entire, without dorsal spines or dorsal setae, distal margin rounded, with 2 marginal penicillate setae and 2 simple marginal setae, without marginal spines.

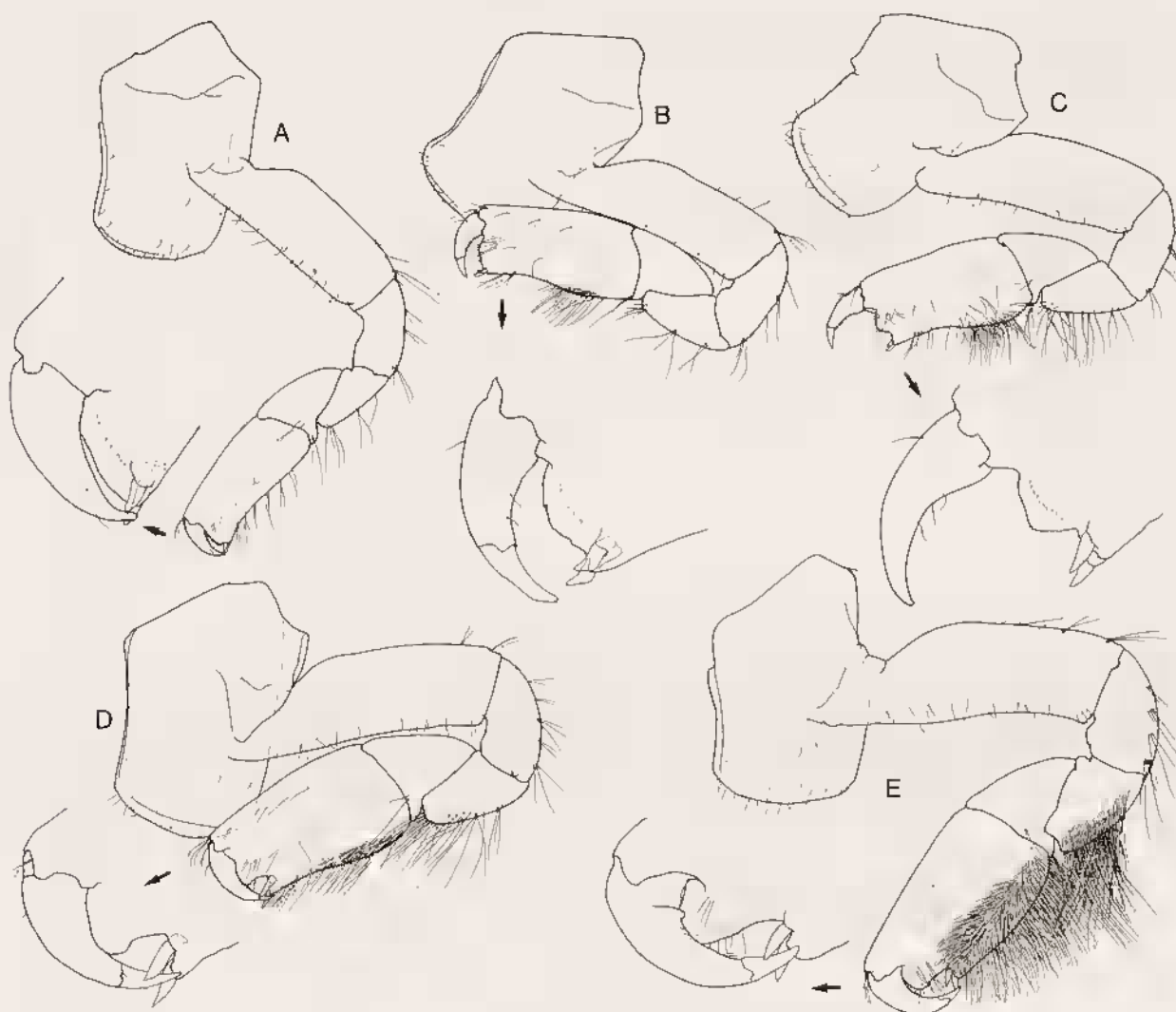


FIG. 32. — *Onesimoides abyssalis* sp. nov., A. paratype male, 7.0 mm; B. paratype male, 8.2 mm; C. paratype male, 8.8 mm; D. paratype male, 9.5 mm; E. paratype male, 11.5 mm (MNHN-Am 4461); north-east of Lifou, Loyalty Islands.

ETYMOLOGY. — The specific name refers to the depth at which this species lives.

REMARKS. — *Onesimoides abyssalis* differs from *O. carinatus* Stebbing, 1888, in having calceoli in the male; although the shape of the palm of gnathopod 1 is similar in the male, the propodus is longer and not as wide; there is no carina on pleonite 3; and no lateral flange on urosomite 3. *Onesimoides abyssalis* is easily distinguished from *O. castellatus* Lowry & Stoddart, 1993, because of the strong patch of setae on the merus and propodus of the male gnathopod 1 and the very different shape of the palm. *Onesimoides abyssalis* is most similar to *O. mindoro* Lowry & Stoddart, 1993, but the shape of the palm and the length to width ratios of the propodus of male gnathopod 1 are different.

DISTRIBUTION. — *Onesimoides abyssalis* is known from the Loyalty Basin, in 3680 m depth.

Onesimoides carinatus Stebbing, 1888

Onesimoides carinatus Stebbing, 1888 : 648, pl. 14; 1906 : 32, fig. 8. — DELLA VALLE, 1893 : 796, pl. 60, figs 39-41. — THURSTON & ALLEN, 1969 : 363. — LOWRY & STODDART, 1993 : 77, figs 13-16.

Onesimoides cavimanus Pirlot, 1933 : 129, figs 40-41.

not *Onesimoides cavimanus* - DAHL, 1959 : 214, fig. 3 (= *O. mindoro*).

not *Onesimoides cavimanus* - LEDOYER, 1978 : 375, figs 9-10b; 1986 : 794, fig. 309 (= *Onesimoides* sp.).

MATERIAL EXAMINED. — Wallis and Futuna Islands. MUSORSTOM 7 : stn DW 637, 13°37'S, 179°56'W, south-west of Rotumah Bank, South Pacific Ocean, inside a hollowed out piece of wood in narrow cavities and chambers, mouthparts covered with mushy wood, 820-830 m, 30 May 1992 : 1 ♂, 1 ♀, 2 juveniles (MNHN-Am 4785); 1 ♂, 1 juvenile (AM P42141).

REMARKS. — LOWRY & STODDART (1993) have recently redescribed *Onesimoides carinatus* and compared it with related species. In these specimens the dorsal carina on pleonite 3 and urosomite 1 is present but very weak. This record extends the genus *Onesimoides* onto the Pacific plate.

DISTRIBUTION. — Indonesia (1158 m); Coral Sea (900 to 2560 m); Rotumah Bank, near Wallis and Futuna Islands (820 to 830 m).

Genus *ORCHOMENELLA* Sars, 1890

REMARKS. — DE BROYER (1984; 1985) has tentatively revised the generic concepts in the *Orchomenella* complex. However, we cannot confidently place the species in our collection into available genera or subgenera based on present diagnoses. The three species all have the gnathopod 1 carpal lobe of *Orchomenopsis* Sars, 1891, and *Abyssorchomene* De Broyer, 1984; *O. gerulicorbis* (Shulenberger & Barnard, 1976) has a subcylindrical molar with oval triturating surface without setae (= *Orchomenopsis*); *O. distinctus* Birstein & Vinogradov, 1960, has a molar in the shape of a crest, as in *Abyssorchomene*, but without setae on the triturating surface; *O. abyssorum* (Stebbing, 1888) also has a molar without setae on the triturating surface but it is gradational in shape between that of *Abyssorchomene* and *Orchomenopsis*. Therefore we tentatively place these species into the broadly defined genus *Orchomenella* until the complete revision of DE BROYER is available.

Orchomenella abyssorum (Stebbing, 1888)

Orchomene abyssorum Stebbing, 1888 : 676, pl. 21. — LOWRY & BULLOCK, 1976 : 94. — BARNARD & KARAMAN, 1991 : 508.

Orchomenopsis abyssorum - Sars, 1891 : 74. — CHEVREUX, 1900 : 23; 1903 : 92; 1905b : 7; 1935 : 59. — WALKER, 1903 : 232. — STEBBING, 1906 : 84, fig. 14. — STEPHENSEN, 1925 : 125. — DAHL, 1954 : 282.

Anonyx abyssorum - DELLA VALLE, 1893 : 824.

Orchomenella abyssorum - RUFFO, 1949 : 10 (list). — SCHELLENBERG, 1955 : 192. — J.L. BARNARD, 1958 : 96; 1964b : 86, 89 (key). — DAHL, 1959 : 225. — BIRSTEIN & VINOGRADOV, 1960 : 188, fig. 8; 1962 : 41; 1964 : 164. — GURJANOVA, 1962 : 433 (key). — HURLEY, 1963 : 125, 126. — THURSTON & ALLEN, 1969 : 364. — SANDERSON, 1973 : 37. — ARNAUD, 1974 : 572.

Orchomenopsis (Orchomene) abyssorum - COSTELLO *et al.*, 1989 : 32.

Orchomene (Abyssorchomene) abyssorum - BARNARD & INGRAM, 1990 : 26, figs 15-17.

Abyssorchomene abyssorum - THURSTON, 1990 : 262, 263. — PALERUD & VADER, 1991 : 32.

? *Orchomenella abyssorum* - K.H. BARNARD, 1932 : 69, figs 27b, 28. — NICHOLLS, 1938 : 35, fig. 15. — LOWRY, 1982 : 320.

? *Orchomene abyssorum* - AUSTIN, 1985 : 601.

not *Orchomenopsis chilensis abyssorum* Schellenberg, 1926a : 291, fig. 27 (= *Orchomenella* sp.).

MATERIAL EXAMINED. — **Marquesas Islands**, SMCB, R.V. *Marara* : stn 293, 9°47.30'S, 139°11.80'W, off Hiva-Oa Island, baited trap at 900 m, J.M. POUPIN, 30 August 1990 : 1 ♂, 7.0 mm (AM P42142).

REMARKS. — The specimen from the Marquesas differs from STEBBING's illustrations in the following points : the **palp** of maxilla 1 has 5 apical spines; the inner of the two apical spines on the maxilliped outer plate is broader; articles 2 and 3 of the maxillipedal palp are slightly broader; there are a few setae on the anterior margin of gnathopod 1 basis; the dorsal boss on urosomite 1 is slightly longer; uropod 1 inner ramus has a small spine on the medial margin; uropod 2 outer ramus has fewer spines; the proximal spine of the three dorsal spines on each lobe of the telson is very weak.

DISTRIBUTION. — *Orchomenella abyssorum* is known from off Buenos Aires, South Atlantic Ocean (3475 m); north-eastern North Atlantic Ocean (1414 to 4849 m); Kermadec Trench (8210 to 8300 m), Marquesas Islands (900 m), South Pacific Ocean; Galápagos vents, East Pacific Ocean (2491 m); Southern Ocean (210 to 3700 m).

Orchomenella distinctus Birstein & Vinogradov, 1960

Orchomenella distinctus Birstein & Vinogradov, 1960 : 191, fig. 10.

Orchomene (Abyssorchomene) distinctus - BARNARD & INGRAM, 1990 : 22, figs 12-14. — VINOGRADOV, 1993 : 43.

Abyssorchomene ?distincta - THURSTON, 1990 : 263.

Orchomene distinctus - BARNARD & KARAMAN, 1991 : 508.

MATERIAL EXAMINED. — **Loyalty Islands**, BIOGEOCAL : stn CP 225, 22°44.94'S, 166°19.84'E, Loyalty Islands Basin, 2200-2280 m, 11 April 1987 : 1 ♀, 18 mm (MNHN-Am 4466).

REMARKS. — There are no dorsal spines on the telson of this specimen; BIRSTEIN & VINOGRADOV (1960) show one pair of spines, and BARNARD & INGRAM (1990) show two pairs.

DISTRIBUTION. — *Orchomenella distinctus* is known from near Palau, south-western North Pacific Ocean (0 to 2000 m); East Pacific vent region, south-eastern North Pacific Ocean (2635 m); East Pacific vent region west of Sala y Gómez, south-eastern South Pacific Ocean (2024 to 2038 m); Loyalty Islands Basin, south-western Pacific Ocean (2200 to 2280); tropical Atlantic Ocean (2300 to 4942 m).

Orchomenella gerulicorbis (Shulenberger & Barnard, 1976)

Orchomene affinis - BIRSTEIN & VINOGRADOV, 1955 : 223, fig. 9.

Orchomene gerulicorbis Shulenberger & Barnard, 1976 : 243, figs 1-3. — THURSTON, 1979 : 56. — BARNARD & KARAMAN, 1991 : 508.

Orchomenella gerulicorbis - THURSTON, 1990 : 265.

Orchomenella (Orchomenopsis) gerulicorbis - PALERUD & VADER, 1991 : 41.

MATERIAL EXAMINED. — **Austral Isles**, SMCB, R.V. *Marara*, (J.K. LOWRY & J.M. POUPIN coll.) : stn FRP-55, 27°35.3'S, 144°15.5'W, just off Rapa, baited trap in 870 m, 17-18 August 1991 : 22 specimens (AM P42143). — Sin FRP-64, 27°35.5'S, 144°15.8'W, just off Rapa, large baited trap, 750 m, 18-19 August 1991 : 10 specimens

(MNHN-Am 4786) : 48 specimens (AM P42144). — Stn FRP-66, 27°35.5'S 144° 15.8'W, just off Rapa, small baited trap, 750 m, 18-19 August 1991 : 4 specimens (AM P42145).

DISTRIBUTION. — *Orchomenella gerulicorbis* is known from the Austral Isles, South Pacific Ocean (750 to 879 m); North Pacific gyre (5720 m); off Kuril-Kamchatka, tropical and north-west Pacific Ocean; north-east Atlantic Ocean (3610 to 5940 m).

Genus *PARAMBASIA* Walker & Scott, 1903

Parambasia acuticaudata Ledoyer, 1984

Parambasia acuticaudata Ledoyer, 1984 : 84, fig. 41.

MATERIAL EXAMINED. — Austral Isles. SMCB, R.V. *Marara*, (J.K. LOWRY coll.) : stn FRP-16, 22°28.5'S, 151°21.38'W, lagoon in front of Puatai Rock, Avera, Rurutu, sand and algae with mussels on shallow reef platform near edge of reef, 0.5 m, 10 August 1991 : 1 ♀ (ovigerous, 4 eggs), 3 specimens (AM P42146). — Stn FRP-18, 22°28.5'S, 151°21.38'W, lagoon in front of Puatai Rock, Avera, Rurutu, *Sargassum*-like brown alga, extremely common just inside the reef platform, 1 m, 10 August, 1991 : 3 specimens (MNHN-Am 4787).

REMARKS. — These specimens are difficult to identify. They are not *P. nui* Myers, 1985, because article 2 of the mandibular palp is longer and more slender, article 3 of the maxillipedal palp is not short and broad, the palm of gnathopod 1 is not as well defined and although the inner ramus of uropod 3 is shortened, it is not as short as that of *P. nui*. Examination of the type material of *P. nui* indicates that both male and female have a similar gnathopod 1 and both look like the male figured by MYERS, 1985. The ovigerous female has no oostegites, but the situation in LEDOYER's female material of *P. acuticaudata* is undetermined. We can see no differences between these specimens and the specimen described by LEDOYER (1984). Aside from the slightly shortened inner ramus of uropod 3 the Austral Isle material fits best to *P. acuticaudata*.

DISTRIBUTION. — New Caledonia and Austral Isles, in less than 10 m depth.

Genus *PROCYPHOCARIS* J.L. Barnard, 1969

Procyphocaris indurata (K.H. Barnard, 1925)

Uristes induratus K.H. Barnard, 1925 : 333 pl. 34, fig. 3.

Procyphocaris primata J.L. Barnard, 1961 : 49, fig. 18.

Procyphocaris induratus - GRIFFITHS, 1975 : 149. — LEDOYER, 1986 : 800, fig. 312.

Procyphocaris indurata - BARNARD & KARAMAN, 1991 : 520.

MATERIAL EXAMINED. — New Caledonia. BIOCAL : stn CP 57, 23°44.51'S, 166°54.94'E to 23°56.52'S, 166°40.55'E, south of the Isle of Pines, 1490-1620 m, 1 September 1985 : 1 specimen (MNHN-Am 4433). — Stn CP 58, 23°56.52'S, 166°40.55'E to 23°55.86'S, 166°41°71'E, south of the Isle of Pines, 2660-2750 m, 2 September 1985 : 1 specimen (MNHN-Am 4435).

DISTRIBUTION. — *Procyphocaris indurata* is known from southern Africa, Australia and New Caledonia, in 1280 to 2750 m depth.

Genus *SOCARNES* Boeck, 1871

Socarnes Boeck, 1871 : 99. — STEBBING, 1906 : 56 (in part, not *Ephippiphora* White, 1847). — J.L. BARNARD, 1969 : 362. — LINCOLN, 1979 : 96 (in part, not *Socarnopsis* Chevreux, 1911). — BARNARD & KARAMAN, 1991 : 531.

DIAGNOSIS. — Upper lip produced beyond epistome in large rounded lobe. Mandible : lacinia mobilis present; molar setose with or without distal vestigial triturating surface. Maxilla 1 : ST7 symmetrical; palp terminally serrate. Gnathopod 1 : simple.

TYPE SPECIES. — *Lysianassa vahlii* Krøyer, 1838, by monotypy.

SPECIES COMPOSITION. — *Socarnes* contains 10 taxa : *S. bidenticulatus* (Bate, 1858); *S. bidenticulatus japonicus* Gurjanova, 1962; ? *S. eugenovi* (Gurjanova, 1934); *S. hartmani* Hurley, 1963; *S. rurutu* sp. nov.; *S. tiendi* sp. nov.; *S. tuscarora* sp. nov.; *S. illudens* (Hurley, 1963); ? *S. unidentatus* Schellenberg, 1931; *S. vahlii* (Krøyer, 1838).

HURLEY (1963), originally placed *S. illudens* in *Socarnoides* because it had an incised inner ramus on uropod 2 (we do not regard this as a generic character). He pointed out that in other respects it resembled *S. vahlii*. We are transferring *S. illudens* to *Socarnes* because of the shape of the epistome/upper lip complex, the midway insertion of the mandibular palp and the non-swollen base of the maxilla 1 palp.

Socarnoides eugenovi possibly belongs in *Socarnes*. It is currently not well enough described to place with certainty in any genus, but the upper lip/epistome complex is uncharacteristic of *Socarnoides* and similar to that of *Socarnes*. The base of the maxilla 1 palp is not swollen and the mandibular palp appears to be inserted more distally than in *Socarnoides*. *Socarnes unidentatus* has been placed in the genus *Socarnoides* (HURLEY, 1963; BARNARD & KARAMAN, 1991), again probably because of the incised inner ramus of uropod 2. The species is poorly described and illustrated, but based on the illustration of the epistome/upper lip it should not be considered as a *Socarnoides* and is more likely to be in the genus *Socarnes*.

BARNARD & KARAMAN (1991) assigned, with some doubt, *Orchomene morbihanensis* Bellan-Santini & Ledoyer, 1974, to the genus *Socarnes*. However, the species belongs in the genus *Lysianella* Sars, 1883. Among other *Lysianella* characters it has the characteristic swollen peduncular article 4 of antenna 2 and the short mandibular palp article 2.

REMARKS. — LINCOLN (1979) synonymized *Socarnes* and *Socarnopsis* Chevreux, 1911, because the type species of both genera have the gills pleated on both sides. We agree that these genera are closely related, but we think that consistent differences, such as the presence or absence of a lacinia mobilis, the triturating surface of the molar and the terminal ornamentation of the maxilla 1 palp, indicate that the genera should remain separate. All species attributed to these genera need to be carefully examined.

DISTRIBUTION. — *Socarnes* is known from north-eastern Atlantic ocean; north-western and south-western North Pacific Ocean; tropical south-western South Pacific Ocean; from immediate sublittoral to 550 m depth.

Socarnes rurutu sp. nov.

Figs 33-35

MATERIAL EXAMINED. — Austral Isles. SMCB, R.V. *Marara*, (J.K. LOWRY, & J.M. POUPIN coll.) : stn FRP-7, 21°47.7'S, 154°43.4'W, north-east side of Maria Island, baited trap, 500 m, 8 August 1991 : 6 specimens (MNHN-Am 4788). — Stn FRP-23, 22°29.3'S, 151°21.9'W, off Rurutu, baited trap on sandy bottom, 490 m, 10 August 1991 : 1 ?♀, 6.4 mm (AM P42147); 2 specimens (AM P42148). — Stn FRP-56, 27°36.2'S, 144°16.3'W, off Rapa, baited trap, 290 m, 7-18 August 1991 : 5 specimens (AM P42149).

TYPES. — The ?female, 6.4 mm (AM P42147) is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — Off Rurutu, Austral Isles, French Polynesia, 22°29.3'S, 151°21.9'W, 490 m.

DIAGNOSIS. — Maxilla 1 : palp with vestigial terminal spines. Maxilliped : inner plate without nodular spines. Gnathopod 2 : minutely subchelate, palm extremely obtuse with straight margin. Peraeopod 7 : posteroventral corner of basis rounded. Telson moderately cleft, about 50%.

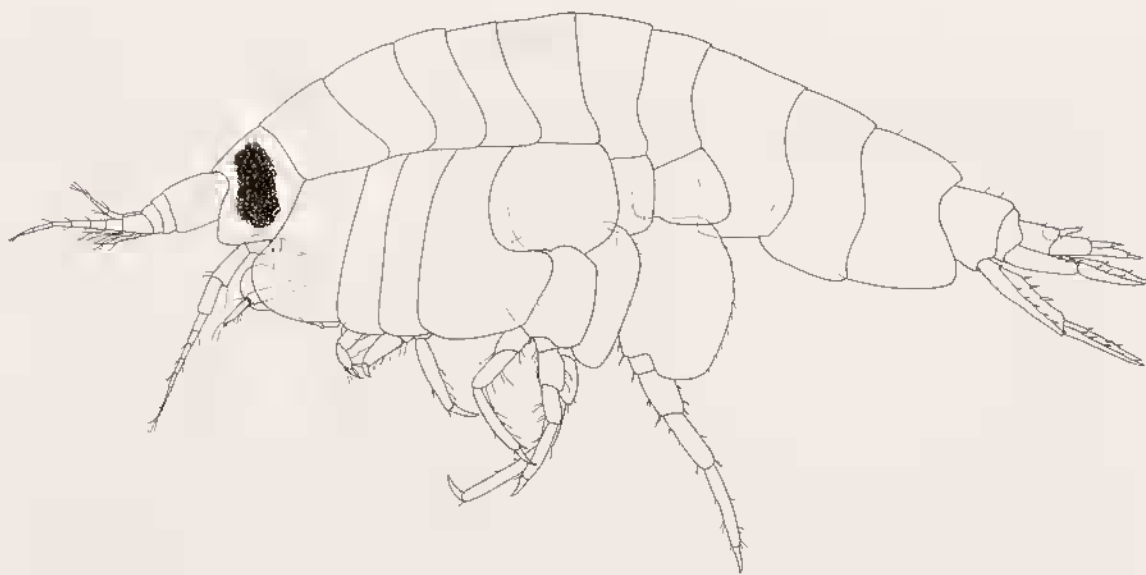


FIG. 33. — *Socarnes rurutu* sp. nov., paratype ?female, 5.8 mm (AM P42148), off Rurutu, Austral Isles, French Polynesia.

DESCRIPTION. — Based on holotype ?female, 6.4 mm; male not known. *Head* : exposed, deeper than long; lateral cephalic lobe large, broad, subacute; rostrum absent; eyes reniform. *Antenna 1* : medium length, 0.24 times body; peduncular article 1 short, length 1 times breadth, without tooth on distomedial margin, posterodistal tooth or anterodistal projection; peduncular article 2 short, 0.36 times article 1, without anterodistal projection; peduncular article 3 long, 0.23 times article 1; accessory flagellum long, 0.5 times primary flagellum, 5-articulate, article 1 long, 2 times article 2, not forming cap; flagellum 9-articulate, with strong 2-field callynophore without setae or spines, without flagellar spines, calceoli absent. *Antenna 2* : subequal in length to antenna 1; peduncle without brush setae, weakly geniculate between peduncular articles 3-4, article 3 short, 0.46 times article 4, peduncular articles 4 and 5 not enlarged; flagellum well developed, 10-articulate, calceoli absent.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate; epistome concave; upper lip produced, apically rounded. *Mandible* : incisors symmetrical, large, with strongly convex margins; left lacinia mobilis present, a long slender peg; accessory spine row without distal setal tuft, left and right rows each with 4 slender to stout serrate spines, without intermediate setae; molar a strongly setose tongue; mandibular palp attached proximally; article 1 short, length 1.3 times breadth; article 2 slender, length 4.1 times breadth, 1.8 times article 3, with 11 submarginal posterodistal A2-setae; article 3 falcate, long, length 3.4 times breadth, without proximal A3-setae, with 7 proximal and 4 distal D3-setae and 2 apical E3-setae. *Maxilla 1* : inner plate narrow with 2 plumose apical setae, outer seta without denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, multicuspidate, ST4 large, slender, 7-cuspidate, ST5-ST6 large, slender, 9-cuspidate, ST7 slightly displaced from ST6, large, broad, 9-cuspidate; inner row with STA large, broad, 4-cuspidate, STB large, broad, 6-cuspidate, STC large, broad, 5-cuspidate, STD small, slender, 4-cuspidate; palp large, 2-articulate, with 4 vestigial spines on serrate apical margin, without subterminal setae, flag spine present on distolateral corner (vestigial), distomedial margin serrate. *Maxilla 2* : inner plate narrow, without nodular spines (apparently fused), oblique setal row strong with 7 plumose setae; outer plate small, subovate, distomedial margin obliquely truncated and slightly concave, with subapical notch, without apical setae or spines, without medial spines, submarginal setae vestigial; palp large, 4-articulate; article 2 slender, length 3.3 times breadth, 1.6 times article 3; article 3 long, slender, length 2.3 times breadth; dactylus well developed, with 3 subterminal setae, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa large, as long as coxa 2, anterior margin concave, anteroventral corner produced, rounded, posterior margin slightly concave; basis long, slender, length

3.6 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.1 times breadth, anterior margin smooth; merus, posterior margin with group of long simple setae; carpus subtriangular, short, length 1.6 times breadth, shorter than (0.9 times) propodus, without denticulate patch near posterodistal margin; propodus large, subrectangular, length 2.4 times breadth, tapering distally, posterior margin smooth, straight, with 11 spines, without disto-medial setae, without denticulate patch near posterior margin, palm absent; dactylus simple, without subterminal teeth or spines. *Gnathopod 2* : minutely chelate; coxa large, subequal in size to

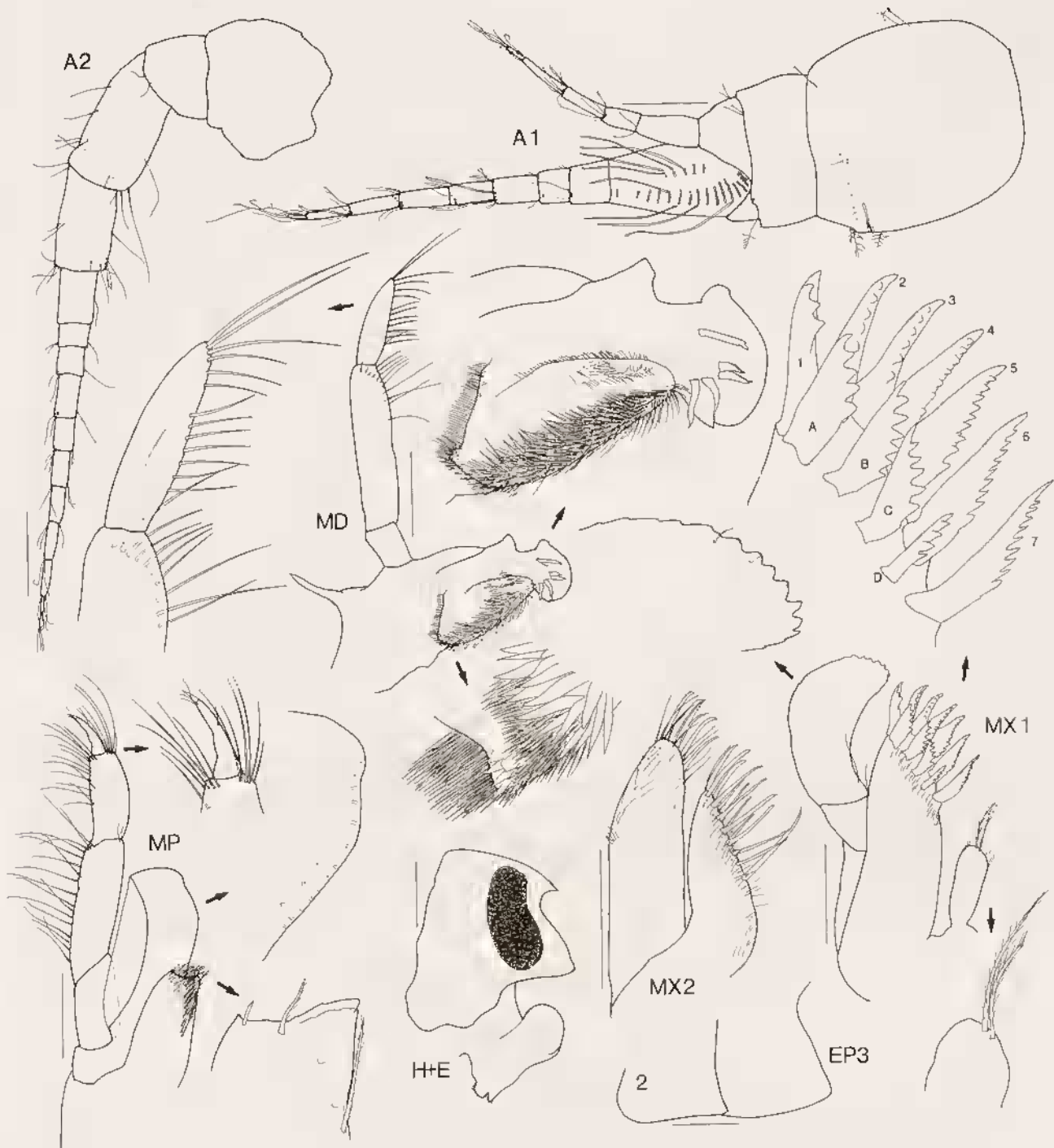


FIG. 34. — *Socarnes rurutu* sp. nov., holotype ?female, 6.4 mm (AM P42147), off Rurutu, Austral Isles, French Polynesia. Scales represent 0.2 mm.

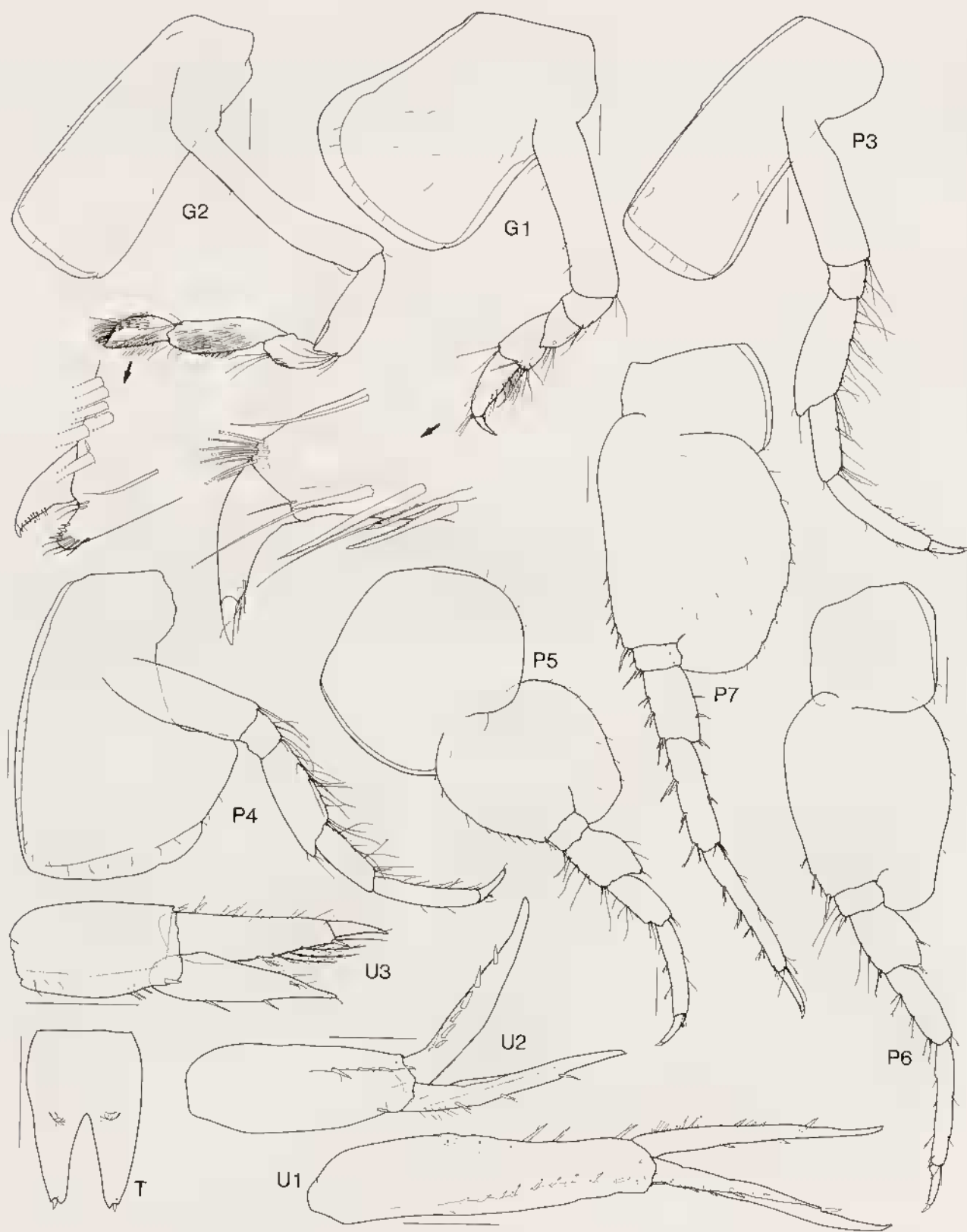


FIG. 35. — *Socarnes rurutu* sp. nov., holotype ?female, 6.4 mm (AM P42417), off Rurutu, Austral Isles, French Polynesia. Scales represent 0.2 mm.

coxa 3; ischium long, length 2.9 times breadth; carpus long, length 3.2 times breadth, posterior margin broadly lobate; propodus subrectangular, long, length 2.2 times breadth, palm extremely obtuse, with straight, smooth margin, posterodistal corner with 3 medial spines; dactylus over-reaching corner of palm, posterior margin smooth.

Peraeopod 3 : coxa large; merus expanded anterodistally along carpus, merus-carpus without plumose setae; propodus with 8 setae along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus expanded anterodistally along carpus, merus-carpus without plumose setae; propodus with 9 setae along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate (also very large); basis expanded with posterior margin minutely crenate; merus expanded with rounded posterior margin; propodus with 4 setae along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis, anterior margin rounded proximally, straight distally, basis expanded posteriorly with smooth posterior margin, without anteroventral lobe; merus expanded with rounded posterior margin; propodus with 4 setae and 1 distal spine along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus not expanded posteriorly with 4 spines; propodus with 8 spines and 2 distal setae along anterior margin and 10 setae along posterior margin; dactylus short, slender.

Oostegites : [unknown]. *Gills* : from gnathopod 2 to peraeopod 6, with weak horizontal pleating.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner produced, narrowly rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : dorsally smooth; urosomite 3 with 1 small dorsolateral spine. *Uropod 1* : with long fine setae; peduncle with 10 dorsolateral, 1 apicolateral, 4 dorsomedial and 1 apicomедial spines; rami subequal in length, outer ramus with 7 lateral spines; inner ramus with 2 lateral and 2 medial spines. *Uropod 2* : with long fine setae; peduncle with 3 dorsolateral, 1 apicolateral and 1 apicomедial spines, without spines along distal margin; rami subequal in length, outer ramus with 6 lateral spines in weak acclivities; inner ramus with 3 lateral spines and weak constriction. *Uropod 3* : peduncle well developed, short, length 1.7 times breadth, without dorsolateral flange, with 1 apicolateral spine, without midlateral spines or setae, with 1 distoventral spine, without plumose setae; rami lanceolate, inner ramus reduced, about 0.84 times outer ramus, outer ramus 2-articulate, article 2 short, article 1 with 1 medial spine; inner ramus with 2 lateral and 1 medial spines, plumose setae present. *Telson* : longer than broad, length 1.5 times breadth, moderately cleft (52%), without dorsal spines or setae, distal margins incised, without marginal penicillate or simple setae, with 1 marginal spine on each lobe.

ETYMOLOGY. — Named for the island of Rurutu, near the type locality.

REMARKS. — *Socarnes rurutu* and *S. tuscarora* are the first records of the genus on the Pacific Plate. They are closely related species and the differences between them are complicated because no specimens of *S. rurutu* appear to be fully mature. Nonetheless *S. rurutu* differs from *S. tuscarora* and *S. tiendi*, from New Caledonia, in not having nodular spines on the inner plate of the maxilliped, having a rounded posteroventral corner on the basis of peraeopod 7, having stronger, though less numerous, spines on the rami of uropod 2 and having the telson cleft only about 50%. It differs further from *S. tiendi* in having an apically notched outer plate on the maxilliped and a minutely chelate gnathopod 2.

DISTRIBUTION. — *Socarnes rurutu* is known only from Rurutu, Austral Isles, in 290 to 500 m depth.

Socarnes tiendi sp. nov.

Figs 36-38

MATERIAL EXAMINED. — New Caledonia. LAGON : stn 394, 22°44'S, 167°06'E, east of Tiendi reef, Grand Récif Sud, 309 m, 23 January 1985 : 1 ♂, 12.5 mm (MNHN-Am 4386).

BIOCAL : stn DW 43, 22°46.21'S, 167°14.50'E to 22°46.22'S, 167°14.50'E, south of the Iste of Pines, 400 m, 30 August 1985 : 1 juvenile (MNHN-Am 4376).

MUSORSTOM 4 : sin DW 234, 22°15.50'S, 167°08.30'E, off the Havannah Channel, 350-365 m, 2 October 1985 : 1 ♀, 16.0 mm (MNHN-Am 4429).

Types. — The female (MNHN-Am 4429) is the holotype. The other specimens are paratypes.

Type Locality. — East of Tiendi reef, Grand Récif Sud, New Caledonia, 22°15.50'S, 167°08.30'E, 350-365 m depth.

Diagnosis. — Maxilla 1 : palp with vestigial terminal spines. Maxilliped : inner plate with nodular spines. Gnathopod 2 : subchelate, palm acute with large concave margin. Peraeopod 7 : posteroventral corner of basis subquadrate. Telson moderately cleft, about 60%.

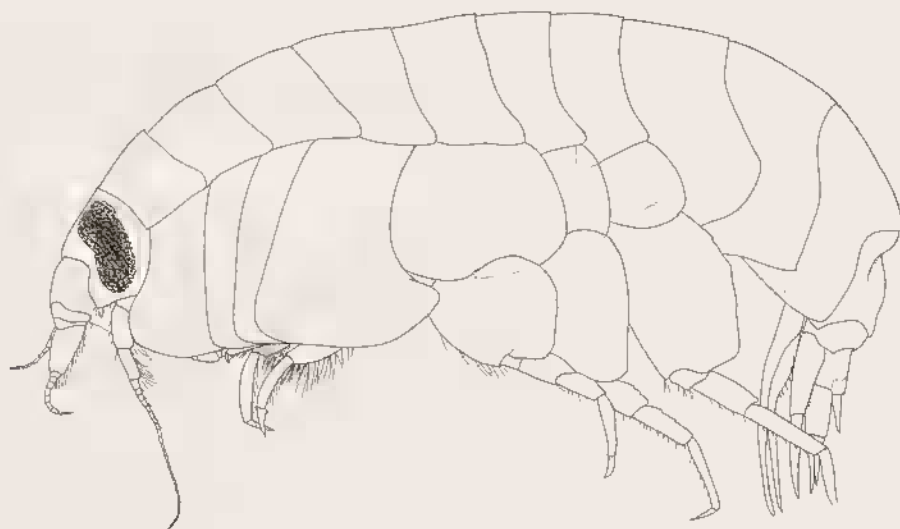


FIG. 36. — *Socarnes tiendi* sp. nov., holotype female 16 mm (MNHN-Am 4429), off Havannah Channel, New Caledonia.

Description. — Based on holotype female, 16.0 mm; male paratype, 12.5 mm. Head : exposed, deeper than long; lateral cephalic lobe large, broad, distally truncated (male slightly more acute); rostrum absent; eyes reniform, not enlarged in adult male. Antenna 1 : short, 0.14 times body; peduncular article 1 short, length 1.1 times breadth, without dorsal crest, without tooth on distomedial margin, posterodistal tooth or anterodistal projection; peduncular article 2 short, 0.27 times article 1, without anterodistal projection; peduncular article 3 short, 0.15 times article 1; accessory flagellum long, 0.7 times primary flagellum, 11-articulate, article 1 short, 1.8 times article 2 (male short) not forming cap; flagellum 9-articulate (male 10+), with strong 2-field calynophore in female and male, without flagellar spines, calceoli absent in female and male. Antenna 2 : length 1.7 times antenna 1 (0.7 times body length in male); peduncle without brush setae (same in male), female weakly geniculate between peduncular articles 3-4, article 3 short, 0.51 times article 4 (male strongly geniculate between peduncular articles 4-5, article 3 short, 0.52 times article 4), peduncular article 4 enlarged in male; flagellum well developed, 26-articulate (male 71), without thick setal brush, calceoli absent in female and male.

Mouthpart bundle : subquadrate. Epistome and upper lip : separate; epistome concave; upper lip produced, apically rounded. Mandible : incisors symmetrical, large, with strongly convex margins; left lacinia mobilis present, a long slender peg; accessory spine row without distal setal tuft, left and right rows each with 4 long, slender, "bushy" spines, intermediate setae absent; molar a strongly setose tongue; mandibular palp attached proximally; article 1 long, length 2 times breadth; article 2 slender, length 4 times breadth, with 32 submarginal posterodistal A2-setae (male 22), without D2-setae; article 3 falcate, long, with 0 (male 1) proximal A3-setae, with 15+ (male 17) D3-setae along most of posterior margin and 2 apical E3-setae. Maxilla 1 : inner plate narrow with 2 plumose apical setae, outer seta without denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, multicuspidate, ST4 large, slender, 10-cuspidate, ST5

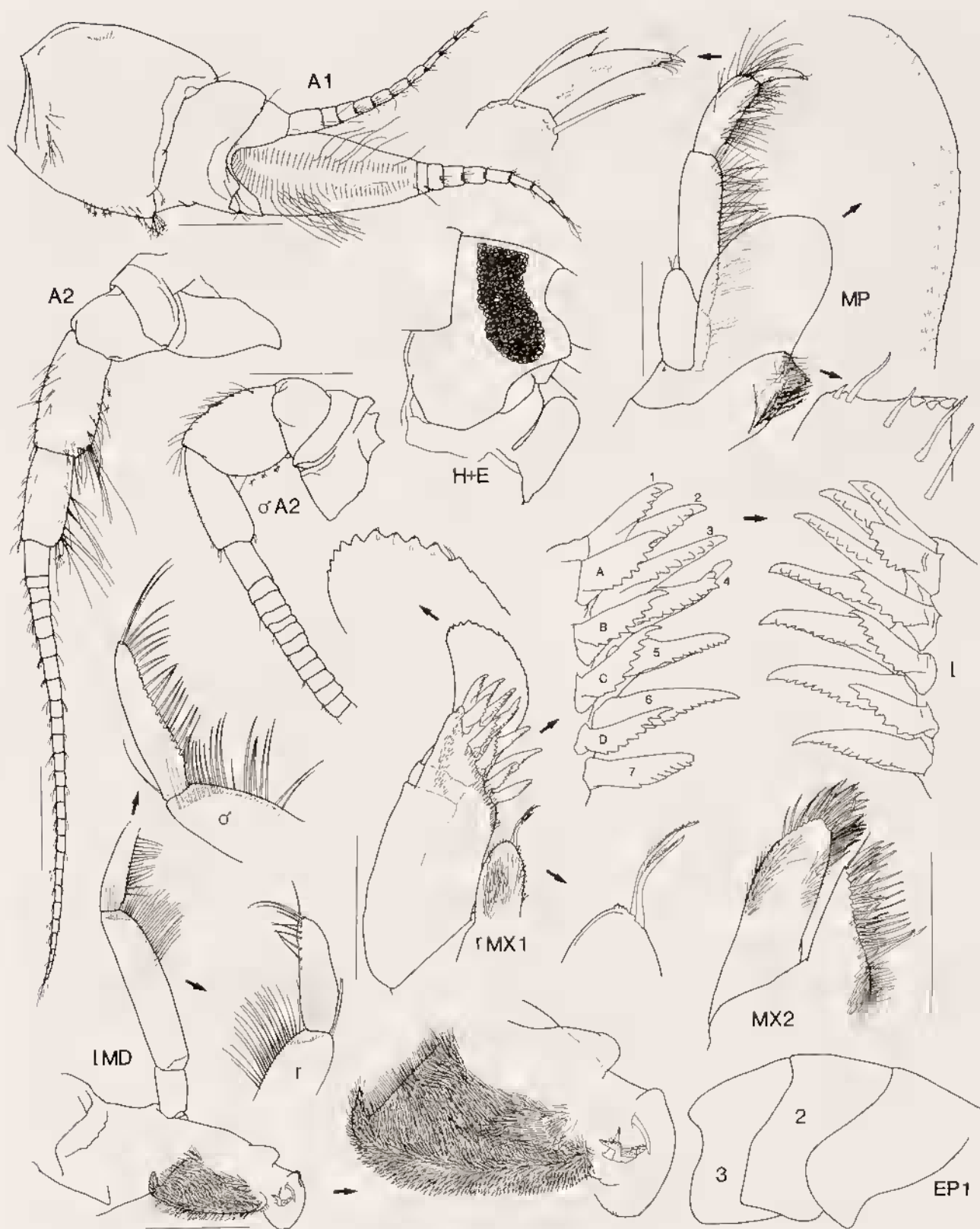


FIG. 37. — *Socarnes tiendi* sp. nov., holotype female, 16 mm (MNHN-Am 4429), off Havannah Channel, New Caledonia; paratype male, 12.5 mm (MNHN-Am 4386); Grand Récif Sud, east of Tiendi reef, New Caledonia. Scales represent 0.5 mm.

large, slender, 9-cuspidate, ST6 large, stout, multicuspidate, ST7 slightly displaced from ST6, large, broad, 8- to 10-cuspidate; inner row with STA large, broad, 6-cuspidate, STB large, broad, 5-cuspidate, STC large, broad, 7-cuspidate, STD large, broad, 6-cuspidate; palp large, 2-articulate, with 4-5 vestigial spines on serrate apical margin, without subterminal setae, flag spine present on distolateral corner (vestigial), distomedial margin serrate. *Maxilla 2* : inner plate narrow, outer plate broader, inner plate 0.73 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, oblique setal row strong with 14 plumose setae; outer plate small, subovate, without subapical notch, without apical setae, apical spines, apical teeth or medial spines, submarginal setae vestigial; palp large, 4-articulate; article 2 slender, length 3.7 times breadth, 1.6 times article 3; article 3 long, slender, length 2.9 times breadth; dactylus well developed, with 5 subterminal setae, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa large, as long as coxa 2, anterior margin concave, anteroventral corner produced, rounded, posterior margin straight; basis long, slender, length 3.3 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.2 times breadth, anterior margin smooth; merus, posterior margin with group of long simple setae and patch of short setae; carpus subtriangular, short, length 1.6 times breadth, longer than (1.1 times) propodus, without denticulate patch near posterodistal margin; propodus large, subrectangular, length 2.1 times breadth, tapering distally, posterior margin smooth, straight, with 13 spines, without disto-medial setae, without denticulate patch near posterior margin, palm absent; dactylus simple, without subterminal teeth or spines. *Gnathopod 2* : subchelate; coxa large, subequal in size to coxa 3; ischium long, length 3.3 times breadth; carpus long, length 2.6 times breadth, posterior margin broadly lobate; propodus subrectangular, short, length 1.7 times breadth, palm acute, with large, concave, smooth margin, posterodistal corner without spines; dactylus not reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus expanded anterodistally along carpus, male and female merus-carpus without plumose setae; propodus with 10 setae and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus expanded anterodistally along carpus, male and female merus-carpus without plumose setae; propodus with 9 setae and 2 distal setae along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate (very large); basis expanded with posterior margin minutely crenate; merus expanded with rounded posterior margin; propodus with 12 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis, anterior margin rounded proximally, straight distally, basis expanded posteriorly with minutely crenate posterior margin, without anteroventral lobe; merus expanded with rounded posterior margin; propodus with 10 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner subquadrate, posteroventral margin straight; merus not expanded posteriorly with 9 spines; propodus with 7 spines and 2 distal spines along anterior margin and 10 setae along posterior margin; dactylus long, slender.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 7, with strong horizontal pleating.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner produced, narrowly rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : urosomite 1 with anterodorsal notch, urosomite 3 without small dorsolateral spine. *Uropod 1* : with long fine setae; peduncle with 28 dorsolateral, 1 apicolateral, 26 dorsomedial and 1 apicomедial spines; rami subequal in length, outer ramus with 7 lateral and 7 medial spines; inner ramus with 16 lateral spines. *Uropod 2* : with long fine setae; peduncle with 8 dorsolateral and 2 dorsomedial spines, without spines along distal margin; rami subequal in length, outer ramus with 21 lateral spines in weak acclivities; inner ramus with 4 medial and 5,1 lateral spines and weak constriction. *Uropod 3* : peduncle well developed, long, length 2 times breadth, without dorsolateral flange, with 3 dorsolateral, 2 apicolateral and 1 apicomедial spines, with 12 midlateral spines and 1 distoventral spines, with plumose setae in female and male; rami lanceolate, inner ramus reduced, about 0.84 times outer ramus, outer ramus 2-articulate, article 2 short, article 1 with 1 medial spine; inner ramus without spines (male with 2 lateral spines), plumose setae present in female and male. *Telson* : longer than broad, length 1.6 times breadth, moderately cleft (60%), without dorsal spines, with row of 5 dorsal setae on each lobe, distal margins truncated, with 1 marginal penicillate seta and 1 simple marginal seta on each lobe, without submarginal spines.

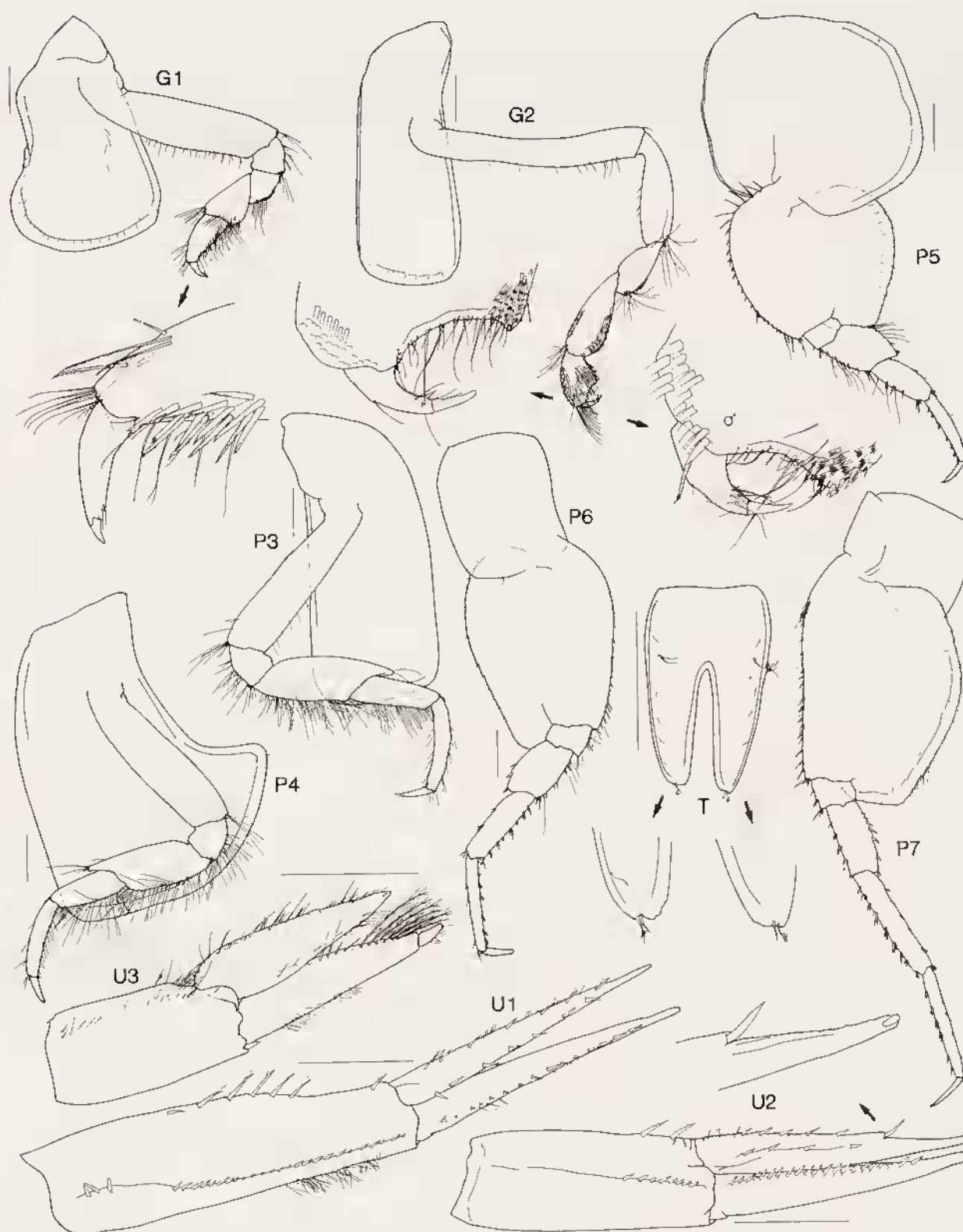


FIG. 38. — *Socarnes tiendi* sp. nov., holotype female, 16 mm (MNHN-Am 4429), off Havannah Channel, New Caledonia; paratype male, 12.5 mm (MNHN-Am 4386), east of Tiendi reef, Grand Récif Sud, New Caledonia. Scales represent 0.5 mm.

ETYMOLOGY. — Named for Tiendi reef near the type locality.

REMARKS. — *Socarnes tiendi* differs from *S. rurutu* and *S. tuscarora* in having a smoothly rounded apical margin on the outer plate of the maxilliped and a large gaped palm on gnathopod 2 in the male and female. In other respects *S. tiendi* and *S. tuscarora* are similar, *Socarnes tiendi* differs further from *S. rurutu* in having nodular spines on the inner plate of the maxilliped, a subquadrate corner on the basis of pereopod 7, more numerous spines on the rami of uropod 2 and a more deeply cleft telson.

DISTRIBUTION. — *Socarnes tiendi* is known only from southern New Caledonia, in 350 to 365 m depth.

Socarnes tuscarora sp. nov.

Figs 39-41

MATERIAL EXAMINED. — **Wallis and Futuna Islands.** MUSORSTOM 7 : sin DW 555, 11°47'S, 178°19'W, Tuscarora Bank, South Pacific Ocean, 540-542 m, 19 May 1992 : adult ♂, 19.5 mm (MNHN-Am 4789).

Indonesia. KARUBAR : DW 32, 5°17'S, 132°51'E, Kei Islands, 170-206 m, 26 October 1991 : 1 ♂ (PPPO).

TYPES. — The male, 19.5 mm (MNHN-Am 4789) is the holotype.

TYPE LOCALITY. — Tuscarora Bank, South Pacific Ocean, 11°47'S, 178°19'E, 540-542 m depth.

DIAGNOSIS. — Maxilla 1 : palp with vestigial terminal spines. Maxilliped : inner plate with nodular spines. Gnathopod 2 : minutely subchelate, palm slightly obtuse with straight margin. Pereopod 7 : posteroventral corner of basis subquadrate. Telson moderately cleft, about 60%.

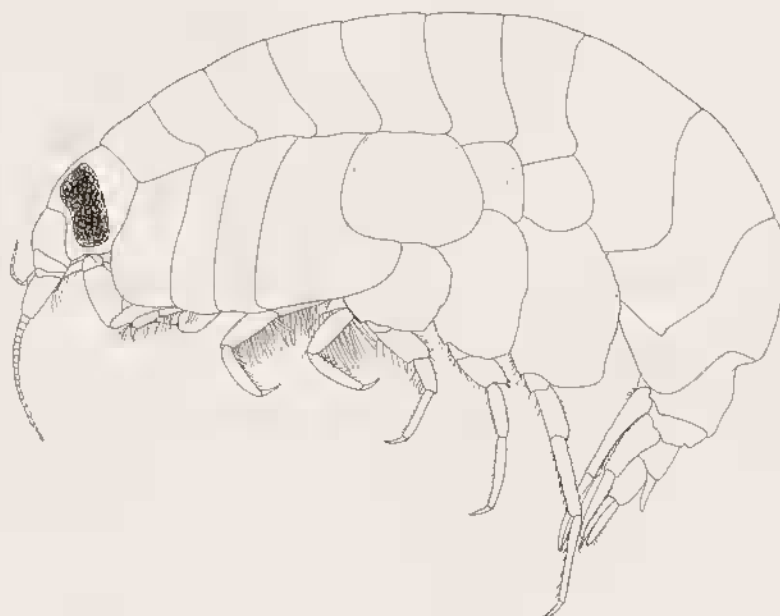


FIG. 39. — *Socarnes tuscarora* sp. nov., holotype male, 19.5 mm (MNHN-Am 4789), Tuscarora Bank, South Pacific Ocean.

DESCRIPTION. — Based on holotype male, 19.5 mm; female not known. *Head* : exposed, deeper than long; lateral cephalic lobe large, broad, subacute; rostrum absent; eyes reniform. *Antenna 1* : medium length, peduncular article 1 short, length 1 times breadth, without dorsal crest or tooth on distomedial margin or posterodistal tooth, without anterodistal projection; peduncular article 2 short, 0.3 times article 1, without anterodistal projection;

peduncular article 3 short, 0.19 times article 1; accessory flagellum medium length, 0.35 times primary flagellum, 8-articulate, article 1 short, 2.4 times article 2, not forming cap; flagellum 20-articulate, with strong 2-field calynophore in male, without flagellar spines, 9 calceoli present in adult male. *Antenna 2*: much longer than body in male; peduncle with strong brush setae in male; male strongly geniculate between peduncular articles 4-5, article 3 short, 0.51 times article 4; peduncular article 4 short, broad, length 3.4 times breadth; flagellum well developed, at least 138-articulate in male, calceoli present in adult male.

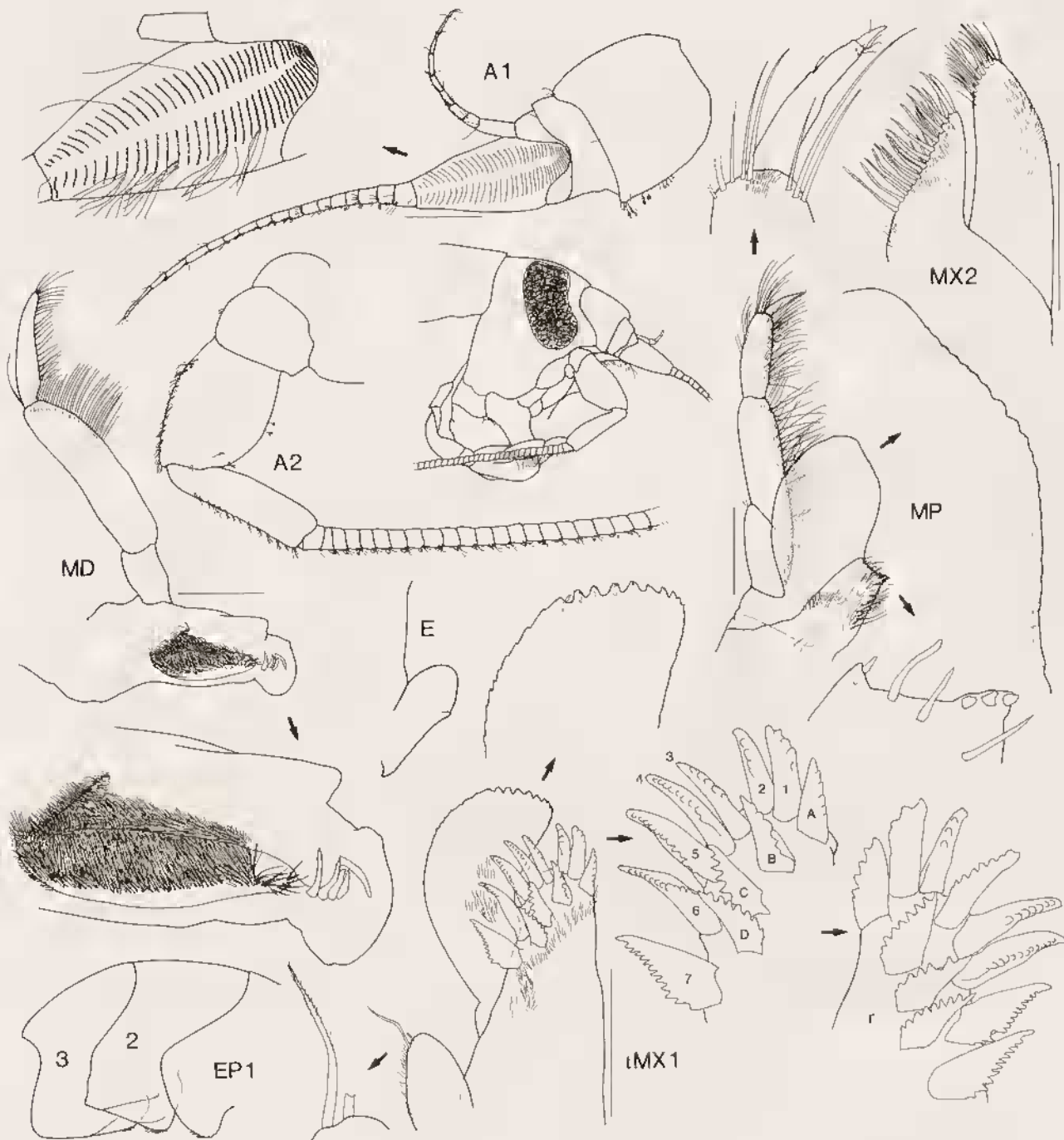


FIG. 40. — *Socarnes tuscarora* sp. nov., holotype male, 19.5 mm (MNHN-Am 4789), Tuscarora Bank, South Pacific Ocean. Scales represent 0.5 mm.

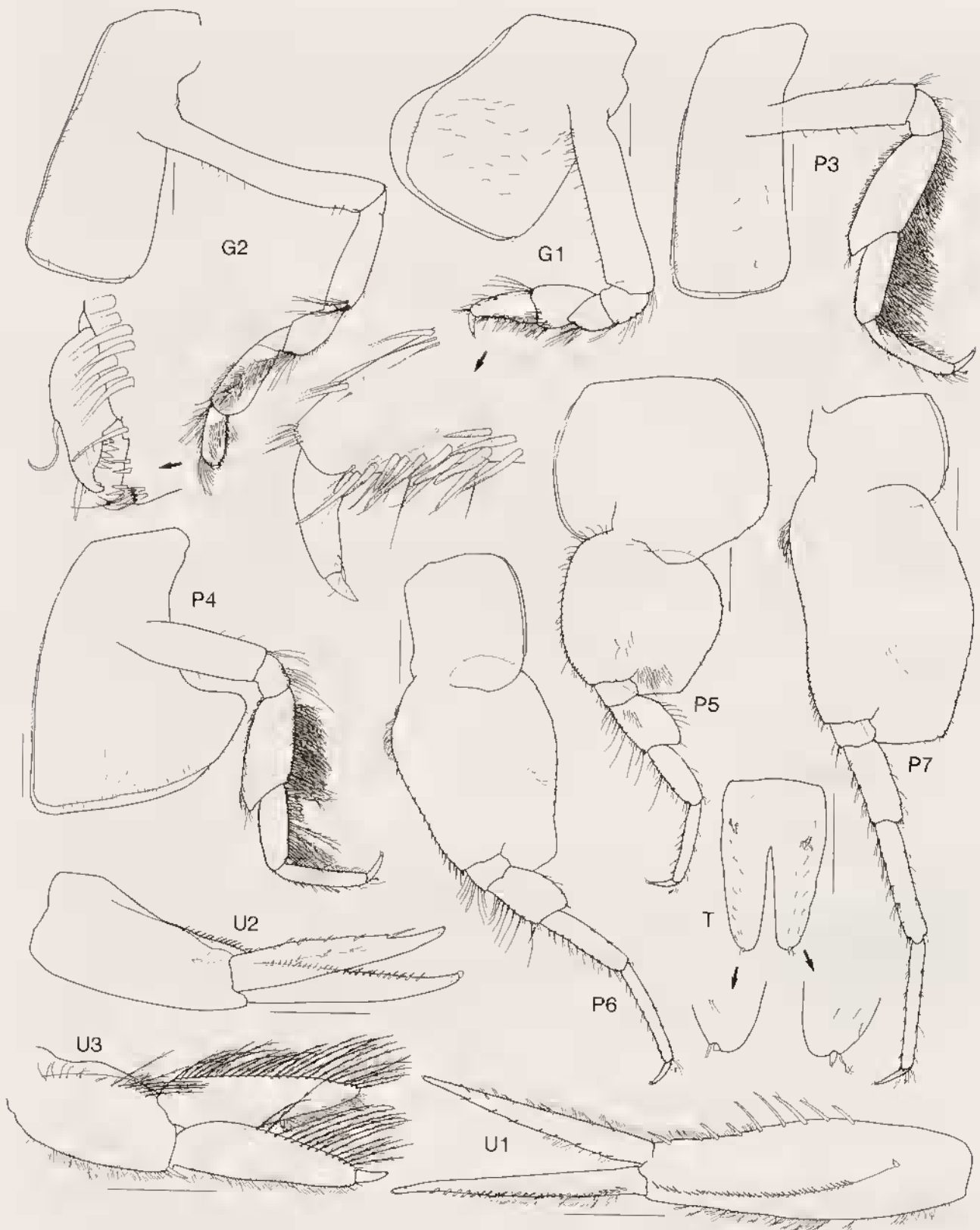


FIG. 41. — *Socarnes tuscarora* sp. nov., holotype male, 19.5 mm (MNHN-Am 4789), Tuscarora Bank, South Pacific Ocean. Scales represent 0.5 mm.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate; epistome straight; upper lip produced, apically rounded. *Mandible* : incisors symmetrical, large, with strongly convex margins; left lacinia mobilis present, a long slender peg; accessory spine row without distal setal tuft, left and right rows each with 4 short, slender, "bushy" spines, without intermediate setae; molar setose with rudimentary distal triturating surface; mandibular palp attached proximally; article 1 short, length 1.6 times breadth; article 2 broad, length 3.8 times breadth, 1.5 times article 3, with 31 submarginal posterodistal A2-setae; article 3 falcate, long, length 4.9 times breadth, with 1 proximal A3-seta, with 12 proximal and 7 distal D3-setae and 3 apical E3-setae. *Maxilla 1* : inner plate narrow, with 2 plumose apical setae, outer seta without denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, multicuspitate, ST4, large, slender, 9-cuspitate, ST5 large, slender, 11-cuspitate, ST6 large, broad, 12-cuspitate, ST7 slightly displaced from ST6, large, broad, 11-cuspitate; inner row with STA large, broad, 4-cuspitate, STB large, broad, 7-cuspitate, STC large, broad, 6-cuspitate, STD long, slender, 7-cuspitate; palp large, 2-articulate, with vestigial spines on serrate apical margin, without subterminal setae, flag spine present (vestigial) on distolateral corner, distomedial margin serrate. *Maxilla 2* : inner plate narrow, outer plate broader, inner plate 0.69 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, oblique setal row strong with 4 distal plumose setae and double row of 10 medial plumose setae; outer plate small, subovate, distomedial margin obliquely truncated and slightly concave, without subapical notch, without apical setae, apical spines or medial spines, submarginal setae absent; palp large, 4-articulate; article 2 extremely slender, length 3.7 times breadth, 1.7 times article 3; article 3 long, slender, length 2.8 times breadth; dactylus well developed, with 4 subterminal setae, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : simple; coxa large, as long as coxa 2, anterior margin concave, anteroventral corner produced, rounded, posterior margin straight; basis long, slender, length 3.9 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.2 times breadth, anterior margin smooth; merus, posterior margin with group of long simple setae and patch of short setae; carpus subtriangular, short, length 1.5 times breadth, subequal in length to propodus, without denticulate patch near posterodistal margin; propodus large, subtriangular, length 2.1 times breadth, tapering distally, posterior margin smooth, subdly sinusoidal, with 14 spines, without disto-medial setae, without denticulate patch near posterior margin, palm absent; dactylus simple, without subterminal teeth or spines. *Gnathopod 2* : minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 3.5 times breadth; carpus long, length 3.1 times breadth, posterior margin broadly lobate; propodus subrectangular, long, length 2.3 times breadth, palm slightly acute, with straight, smooth margin, posterodistal corner without spines; dactylus reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus expanded anteriorly, male merus-carpus with plumose setae, female not known; propodus with 28 setae along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin rounded, posterior margin sloping anteriorly; merus expanded anteriorly, male merus-carpus with plumose setae; propodus with 26 setae along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate (also very large); basis expanded with posterior margin minutely crenate; merus expanded with rounded posterior margin; propodus with 10 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis, anterior margin rounded proximally, straight distally, basis expanded posteriorly with minutely crenate posterior margin, without anteroventral lobe; merus expanded with rounded posterior margin; propodus with 14 spines and 1 distal spine along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner subquadrate, posteroventral margin straight; merus not expanded posteriorly with 9 setae; propodus with 13 spines and 2 distal spines along anterior margin and 18 setae along posterior margin; dactylus short, slender.

Gills : from gnathopod 2 to peraeopod 7, with weak horizontal pteating.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner produced, narrowly rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : urosomite 1 with anterodorsal notch; urosomite 3 with 1 small dorsolateral spine. *Uropod 1* : with long fine setae; peduncle with 35 dorsolateral, 8 long dorsomedial and 1 apicomedial spines; outer ramus slightly longer than inner ramus, outer ramus with 26 lateral spines; inner ramus with 8 medial and 6 lateral spines. *Uropod 2* : without long fine setae; peduncle with 13 dorsolateral and 1 apicolateral spines, with 3 large midmedial spines, without plumose setae, without spines along distal margin;

rami subequal in length, outer ramus with 26 lateral spines; inner ramus with 3 medial and 4,1 lateral spines, and with weak constriction. *Uropod 3* : with long fine setae; peduncle well developed, short, length 1.7 times breadth, without dorsolateral flange, with 3 dorsolateral and 6 dorsomedial spines, without midlateral spines or setae, with 1 distoventral spine, with 9 simple setae, plumose setae present; rami lanceolate, subequal in length, outer ramus 2-articulate, article 2 short, article 1 with 1 medial spine; inner ramus without spines; plumose setae present in male. *Telson* : longer than broad, length 1.6 times breadth, moderately cleft (61%), without dorsal spines, with sparse dorsal setae, distal margins rounded in male, each with 1 simple marginal seta and 1 marginal spine.

ETYMOLOGY. — Named for Tuscarora Bank, the type locality.

REMARKS. — *Socarnes tuscarora* sp. nov. differs from *S. rurutu* in having a slightly obtuse palm on gnathopod 2, and a subquadrate posteroventral corner on the basis of pereopod 7. *Socarnes tuscarora* differs from *S. tiendi* in having an incised apicomedial margin on the outer plate of the maxilliped and minutely subchelate gnathopod 2.

DISTRIBUTION. — *Socarnes tuscarora* is known from Tuscarora Bank, South Pacific Ocean and the Kei Islands, Banda Sea, in 170 to 540 m depth.

Genus *SOCARNOPSIS* Chevreux, 1911

Socarnopsis Chevreux, 1911 : 164. — CHEVREUX & FAGE, 1925 : 48. — J.L. BARNARD, 1969 : 363. — BARNARD & KARAMAN, 1991 : 532.

DIAGNOSIS. — Epistome and upper lip equally produced. Mandible : lacinia mobilis absent; molar setose with well developed triturating surface. Maxilla 1 : ST7 asymmetrical; palp with terminal spines. Gnathopod 1 : slightly subchelate.

TYPE SPECIES. — *Socarnopsis crenulata* Chevreux, 1911 (= *Anonyx filicornis* Heller, 1866), by monotypy.

SPECIES COMPOSITION. — *Socarnopsis* contains 7 species : *S. allecta* (Andres, 1981); *S. dissimilantia* (Imbach, 1967); *S. erythrophthalma* (Robertson, 1892); *S. filicornis* (Heller, 1866); *S. homiara* sp. nov.; *S. obesa* Chevreux, 1919; *S. tandai* sp. nov.

REMARKS. — *Socarnopsis filicornis* (Heller, 1866) now includes *S. schmardae* (Heller, 1866) and *S. crenulata* Chevreux, 1911, according to KRAPP-SCHICKEL, 1974, and DIVIACCO, 1984.

WALKER (1904) reported one specimen of *S. filicornis* (as *Socarnes schmardae*) from Sri Lanka, northern Indian Ocean. It seems unlikely that this is *S. filicornis*. WALKER did not illustrate his material. The very brief description is not sufficient to place it in a genus but does not preclude it from *Socarnopsis*.

K.H. BARNARD (1916) and GRIFFITHS (1974, 1975) have recorded *S. crenulata* from southern Africa. These records may not be the species now known as *S. filicornis* (they are not included in DIVIACCO & RUFFO's 1989 summary of distribution) but do seem to be in the genus *Socarnopsis*.

LEDOYER (1986) recorded several lots of material (previously reported in LEDOYER, 1967, 1972, 1973 and 1979) as *Socarnes obesa*. However, the material of LEDOYER, 1967 (originally recorded as *Orchomene* sp.) has an entire telson and is clearly not a species of *Socarnopsis*. The material of LEDOYER, 1972 (also originally recorded as *Orchomene* sp.) is possibly a species of *Socarnopsis* but differs from *S. obesa* in having a broadly rounded lateral cephalic lobe. The material LEDOYER, 1973 (the illustration of male in LEDOYER, 1986) is clearly a *Socarnopsis* but differs from *S. obesa* in having a straight epitome, a peak on the anterior margin of gnathopod 1 ischium, a much broader gnathopod 1 carpus and a differently shaped gnathopod 2 propodus. The material of LEDOYER, 1979 (the illustrations of female in LEDOYER, 1986) differs from *S. obesa* in having a broadly rounded lateral cephalic lobe and an almost chelate gnathopod 2. Although it has some characters of a *Socarnopsis*,

especially the epistome/upper lip complex and gnathopod 1 propodus, the text suggests that the maxilla 1 palp and mandibular molar are more like those of *Socarnes*.

DISTRIBUTION. — Mediterranean Sea; eastern North and South Atlantic Oceans; Red Sea; south-western North Pacific Ocean, north-western South Pacific Ocean; south-western Indian Ocean, ? northern Indian Ocean; immediate sublittoral to 1544 m depth.

Socarnopsis honiara sp. nov.

Figs 42-43

MATERIAL EXAMINED. — **Solomon Islands.** Stn SI-7, Rove, Honiara, Guadalcanal, 9°25.2'S, 159°56'E, baited trap on limestone reef with some live coral heads and sand patches, 3 m, R.T. SPRINGTHORPE, 28-29 September 1991 : 10 specimens (MNHN-Am 4790); 44 specimens (AM P42150). — Stn SI-8, Rove, Honiara, Guadalcanal, 9°25.2'S, 159°56'E, baited trap on limestone reef with some live coral heads and sand patches, 4 m, R.T. SPRINGTHORPE, 28-29 September 1991 : 137 specimens (AM P42151). — Stn SI-9, Rove, Honiara, Guadalcanal, 9°25.2'S, 159°56'E, baited trap on limestone reef with some live coral heads and sand patches, 5 m, R.T. SPRINGTHORPE, 28-29 September 1991 : 1 ♀, 4.1 mm (AM P42152); 1 ♂, 2.5 mm (AM P42153); 180 specimens (AM P42154).

TYPES. — The female, 4.1 mm (AM P42152) is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — Rove, Honiara, Guadalcanal, Solomon Islands, 9°25.2'S, 159°56'E, 5 m.

DIAGNOSIS. — Antenna 1 with midmedial spines on callynophore. Antenna 2 of male subequal in length to antenna 1. Gnathopod 1: ischium with sharp peak on anterior margin. Epimeron 3: posteroventral corner narrowly rounded. Telson deeply cleft, about 70%.

DESCRIPTION. — Based on holotype female, 4.1 mm (AM P42152); male paratype, 2.5 mm (AM P42153). *Head* : exposed, deeper than long; lateral cephalic lobe large, broad, distally truncated; rostrum small; eyes reniform, dark brown/black in alcohol, not enlarged in adult male. *Antenna 1* : peduncular article 1 short, length 1 times breadth, without tooth on distomedial margin, posterodistal tooth or anterodistal projection; peduncular article 2 short, 0.33 times article 1, without anterodistal projection; peduncular article 3 short, 0.2 times article 1; accessory flagellum long, 0.5 times primary flagellum, 5-articulate, article 1 long, 1.8 times article 2, not forming cap; flagellum 9-articulate (male 7), with strong 2-field callynophore with midmedial spines in female and male, flagellum without flagellar spines, calceoli absent in female and male. *Antenna 2* : subequal in length to antenna 1 (same in male); peduncle without brush setae in female and male, weakly geniculate between peduncular articles 3-4, article 3 short, 0.52 times article 4 (male weakly geniculate between peduncular articles 3-4, article 3 short, 0.47 times article 4), peduncular articles 4 and 5 not enlarged in male or female; flagellum well developed, 9-articulate (male 6), without thick setal brush, calceoli absent in female (1 present in adult male).

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate; epistome concave; upper lip slightly produced, rounded. *Mandible* : incisors symmetrical, small, with strongly convex margins; laciniae mobilis absent; accessory spine row without distal setal tuft, left row with 3, right with 4 short, robust, "bushy" spines, without intermediate setae; molar setose with well developed triturating surface; mandibular palp attached proximally; article 1 short, length 1.2 times breadth; article 2 slender, length 4.2 times breadth, 1.5 times article 3, with 5 (male 3) submarginal posterodistal A2-setae, without D2-setae; article 3 falcate, long, length 4.3 times breadth, without proximal A3-setae, with 3 (male 2) proximal and 2 (male 2) distal D3-setae and 2 apical E3-setae. *Maxilla 1* : inner plate narrow with 2 plumose apical setae, outer seta without denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, weakly to multicuspidate, ST4 large, stout, 4-cuspidate, ST5 large, stout, 4- to 5-cuspidate, ST6 large, very broad, multicuspidate distomedially, left and right ST7 asymmetrical, slightly displaced from ST6, left large, broad, 5-cuspidate distally, right large, very broad, 7-cuspidate distomedially; inner row with STA large, very broad, slightly displaced from STB-STD, multicuspidate along entire medial margin, STB-STD large, broad.

multicuspidate along entire medial margin; palp large, 2-articulate, with 5 short terminal spines, without subterminal setae, flag spine present on distolateral corner, distomedial margin serrate. *Maxilla 2* : inner plate narrow, outer plate broader, inner plate 1 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, oblique setal row reduced with 6 plumose setae; outer plate small,

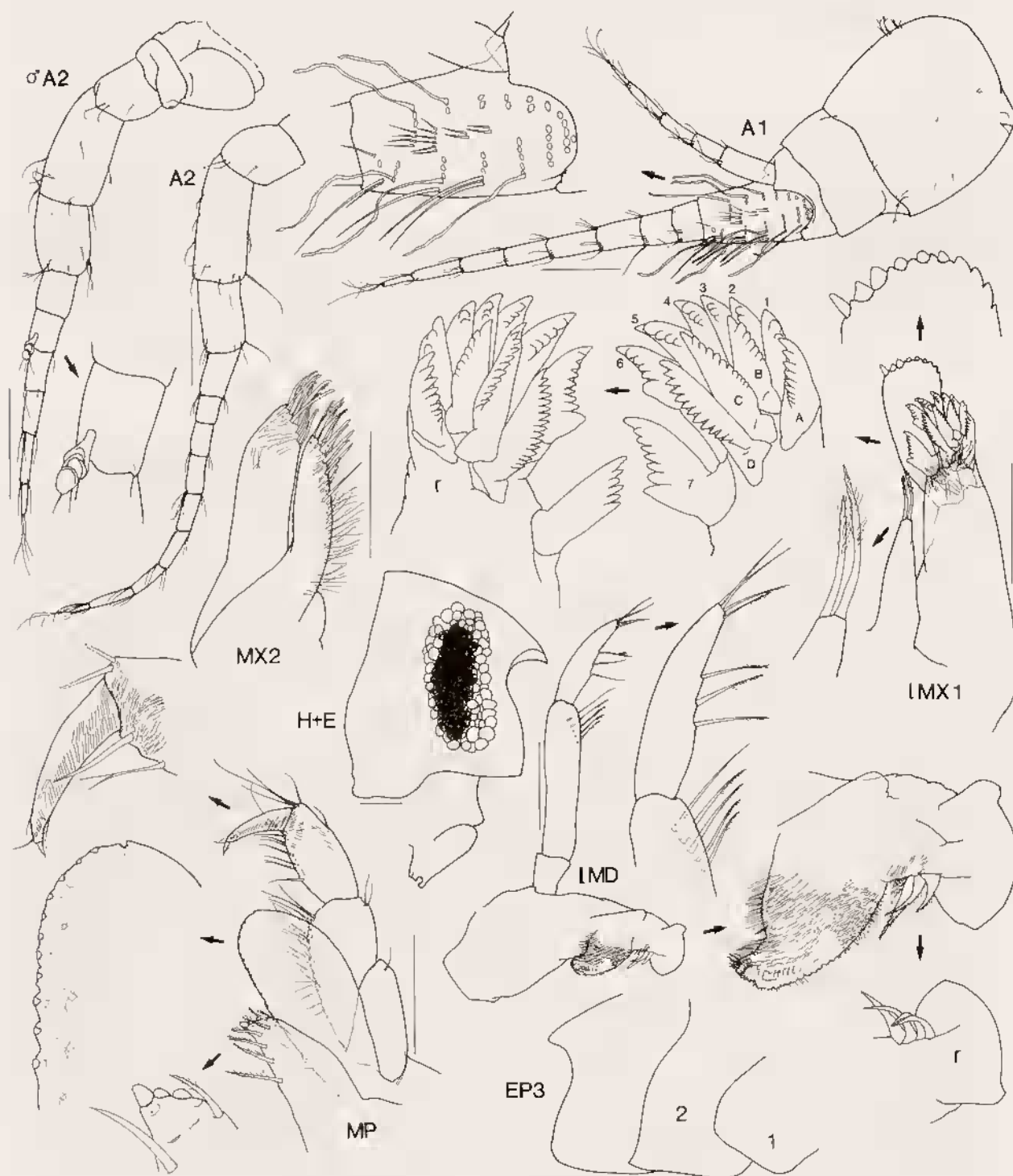


FIG. 42. — *Socarnopsis honiara* sp. nov., holotype female, 4.1 mm (AM P42152); paratype male, 2.5 mm (AM P42153); Rove, Honiara, Guadalcanal, Solomon Islands. Scales represent 0.1 mm.

subovate, without subapical notch, without apical setae or spines, medial spines vestigial, submarginal setae short, simple; palp large, 4-articulate; article 2 slender, length 2.1 times breadth, 1.4 times article 3; article 3 long, slender, length 2.1 times breadth; dactylus well developed, with 2 subterminal setae, unguis present.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : subchelate; coxa large, slightly shorter than coxa 2, anterior margin concave, anteroventral corner produced, rounded, posterior margin slightly convex; basis long, slender, length 3 times breadth, anterior margin smooth, with simple setae; ischium short, length 1 times breadth, anterior margin with sharp peak; merus, posterior margin with patch of short setae and with a few simple setae; carpus subrectangular, short, length 1.9 times breadth, longer than (1.1 times) propodus, with patch of very fine setae near posterior margin; propodus large, subrectangular, length 2.1 times breadth, tapering distally, posterior margin smooth, straight, with 2 spines, without denticulate patch near posterior margin, palm extremely acute, margin straight, smooth, posterodistal corner with 1 medial and 1 lateral spines; dactylus complex, with large subterminal tooth and row of at least 25 medial spines near anterior margin. *Gnathopod 2* : minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 2.6 times breadth; carpus long, length 2.6 times breadth, posterior margin broadly lobate; propodus subquadrate, short, length 1.4 times breadth, palm slightly obtuse, with straight, serrate margin, posterodistal corner without spines; dactylus reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly, merus-carpus without plumose setae; propodus with 4 setae and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus weakly expanded anteriorly, merus-carpus without plumose setae; propodus with 4 setae and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate, very large; basis expanded with posterior margin scalloped, anterior margin with small glands at base of distal setae; merus expanded with rounded posterior margin; propodus with 4 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis expanded posteriorly with smooth posterior margin, without anteroventral lobe; merus slightly expanded posteriorly; propodus with 1 seta and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, anterior margin with small glands at base of proximal setae, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus slightly expanded, convex posterior margin with 3 short spines; propodus with 2 distal spines on anterior margin and 3 setae on posterior margin; dactylus short, slender.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 6, strongly pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : dorsally smooth. *Uropod 1* : without fine setae; peduncle with 5 dorsolateral, 1 apicolateral, 2 dorsomedial and 1 apicomедial spines; rami subequal in length, outer ramus with 3 dorsal spines; inner ramus with 2 dorsal spines. *Uropod 2* : without fine setae; peduncle without dorsolateral flange, with 1 dorsolateral, 1 apicolateral and 1 apicomедial spines, without plumose setae, without spines along distal margin; outer ramus slightly shorter than inner ramus, outer ramus with 2 dorsal spines; inner ramus with 2 dorsal spines, without constriction. *Uropod 3* : peduncle well developed, long, length 2 times breadth, without dorsolateral flange, with 1 dorsolateral and 1 apicolateral spines, without midlateral spines or setae, without distoventral spines or plumose setae; rami lanceolate, subequal in length, outer ramus 2-articulate, article 2 short, rami without spines, plumose setae absent in female and male. *Telson* : longer than broad, length 1.9 times breadth, deeply cleft (72%), without dorsal spines, with sparse dorsal setae, distal margins incised slightly, without marginal penicillate setae, with 1-2 simple marginal setae on each lobe, without marginal spines.

ETYMOLOGY. — Named for the town of Honiara, near the type locality.

REMARKS. — This is the second report of midmedial spines on the callynophore of a tysianassoid. The other occurrence, in *Aristias uokonia*, is in a genus not considered to be closely related to *Socarnopsis*, which indicates that the spines are independently derived. The spines in *S. homiara* are not as robust as those of *A. uokonia*. *Socarnopsis homiara* and *S. tandai* apparently differ from all other species in the genus in having midmedial spines on the callynophore.

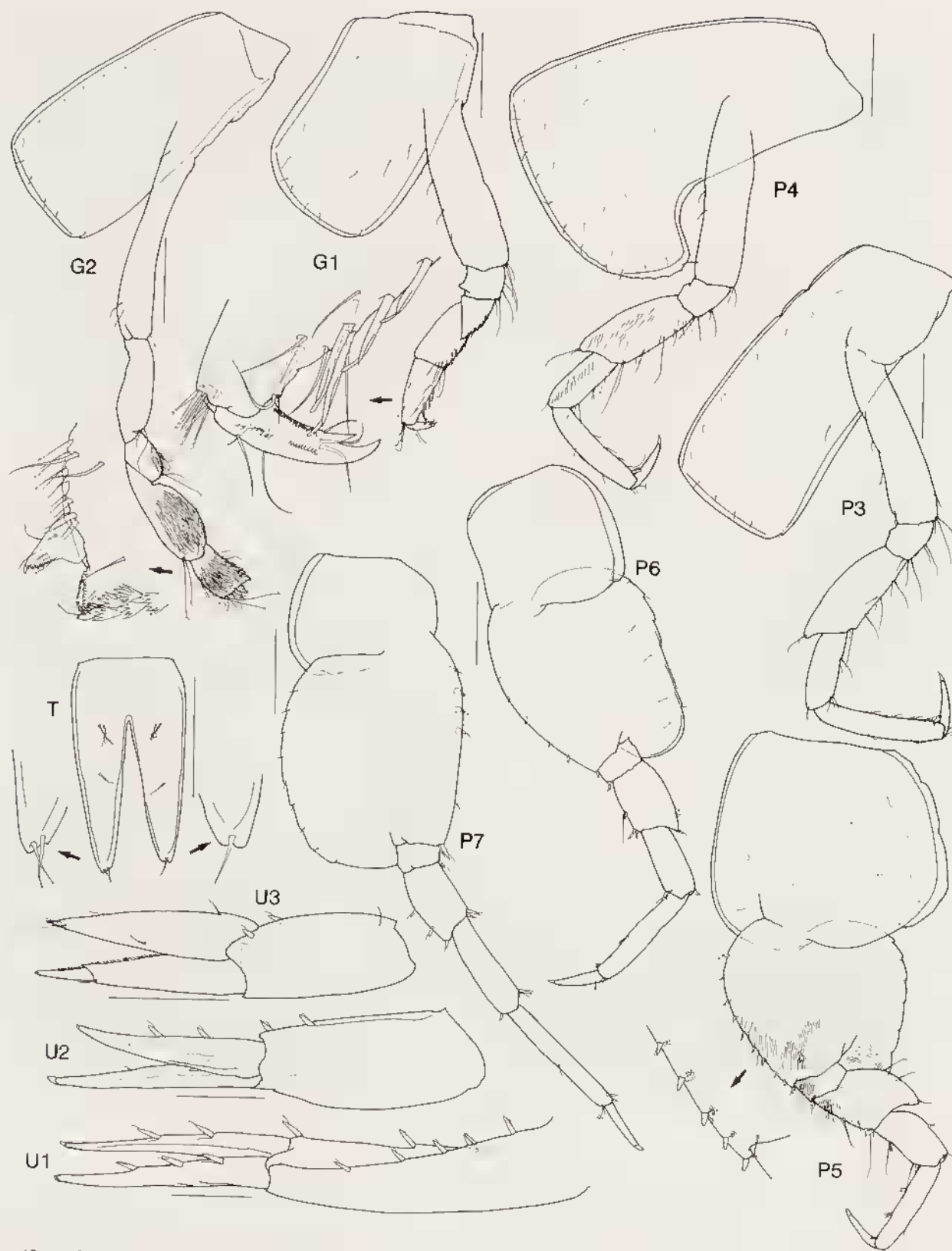


FIG. 43. — *Socarnopsis honiara* sp. nov., holotype female, 4.1 mm (AM P42152); paratype male, 2.5 mm (AM P42153); Rove, Honiara, Guadalcanal, Solomon Islands. Scales for U1-3, T represent 0.1 mm, remainder represent 0.2 mm.

Socarnopsis honiara is one of two species in the genus in which the male second antenna does not become elongate. The other is *S. erythrophthalma*, from which *S. honiara* differs in having dark brown eyes, a well-developed calynophore in both female and male and a more deeply cleft telson.

DISTRIBUTION. — *Socarnopsis honiara* is known from Guadalcanal, Solomon Islands, in 3 to 5 m depth.

Socarnopsis tandai sp. nov.

Figs 44-45

MATERIAL EXAMINED. — Solomon Islands. Stn SI-11, Rove, Honiara, Guadalcanal, 9°25.2'S, 159°56'E, baited trap near small coral head on sand bottom, 25 m, R.T. SPRINGTHORPE, 29-30 September 1991 : 1 ♀, 4.8 mm (AM P42252); 1 ♂, 4.2 mm (AM P42253); 80 specimens (AM P42155); 20 specimens (MNHN-Am 4795). — Stn SI-12, Rove, Honiara, Guadalcanal, 9°25.2'S, 159°56'E, baited trap near small coral head, algal beds on sandy slope, 20 m, R.T. SPRINGTHORPE, 29-30 September 1991 : 22 specimens (AM P42156). — Stn SI-13, Rove, Honiara, Guadalcanal, 9°25.2'S, 159°56'E, baited trap near small coral head on sandy slope, 16 m, R.T. SPRINGTHORPE, 29-30 September 1991 : 9 specimens (AM P42157). — Stn SI-19, 300 m north-west of Tandai Point, Guadalcanal, 9°23'S, 159°52.5'E, baited trap on sand/rubble bottom under overhang near bed of coralline algae, 24 m, R.T. SPRINGTHORPE, 6-7 October 1991 : 3 specimens (AM P42158). — Stn SI-20, 300 m north-west of Tandai Point, Guadalcanal, 9°23'S, 159°52.5'E, baited trap near small coral head, 18 m, R.T. SPRINGTHORPE, 6-7 October 1991 : 6 specimens (AM P42159).

TYPES. — The female, 4.8 mm (AM P42252) is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — Rove, Honiara, Guadalcanal, Solomon Islands, 9°25.2'S, 159°56'E, 25 m.

DIAGNOSIS. — Antenna 1 with midmedial spines on calynophore. Antenna 2 of male elongate. Gnathopod 1: ischium with sharp peak on anterior margin. Epimeron 3: posteroventral corner broadly rounded. Telson deeply cleft, about 70%.

DESCRIPTION. — Based on holotype female, 4.8 mm (AM P42252); paratype male, 4.2 mm (AM P42253). *Head* : exposed, deeper than long, lateral cephalic lobe large, broad, distally truncated; rostrum small; eyes reniform, colour faded red in alcohol, not enlarged in adult male. *Antenna 1* : peduncular article 1 short, length 1 times breadth; peduncular article 2 short, 0.36 times article 1, without anterodistal projection; peduncular article 3 short, 0.2 times article 1; accessory flagellum medium length, 0.36 times primary flagellum, 5-articulate, article 1 long, 1.9 times article 2 (male long, 2 times article 2), not forming cap; flagellum 14-articulate (male 14), with strong 2-field calynophore with midmedial spines in female and male, without flagellar spines, calceoli absent in female and male. *Antenna 2* : subequal in length to antenna 1 (longer than body in male); peduncle without brush setae in female and male, weakly geniculate between peduncular articles 3-4, article 3 short, 0.42 times article 4 (male weakly geniculate between peduncular articles 3-4, article 3 short, 0.6 times article 4), peduncular article 4 enlarged in male; flagellum well developed, 12-articulate (male 51), calceoli absent in female (6 present in adult male on articles 38, 40, 42, 44, 46, 48).

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate, epistome concave, upper lip slightly produced, rounded. *Mandible* : incisors symmetrical, small, with strongly convex margins; lacinia mobilis absent; accessory spine row without distal setal tuft, left row with 3, right row with 4 short, robust, multiserrate setae; intermediae setae absent; molar setose with well developed triturating surface; mandibular palp attached proximally; article 1 short, length 1.5 times breadth; article 2 slender, length 5.9 times breadth, 1.5 times article 3, with 5 submarginal posterodistal A2-setae (male 5), without D2-setae; article 3 falcate, long, length 5.3 times breadth, without A3-setae, with 4 proximal D3-setae (male 5), with 2 distal D3-setae (male 2) and 2 apical E3-setae. *Maxilla 1* : inner plate narrow, with 2 plumose apical setae, outer seta without denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement, outer row with ST1 to ST3 large, stout, weakly to multicuspitate, ST4 large, stout, 4-cuspitate, ST5 large, stout, 5-cuspitate, ST6 large, very broad, 8-cuspitate distomedially, left and right ST7 asymmetrical, slightly displaced from ST6, left large, broad, 5-cuspitate distally, right very broad, 9-cuspitate distomedially; inner row with STA large, very broad, slightly displaced from STB,

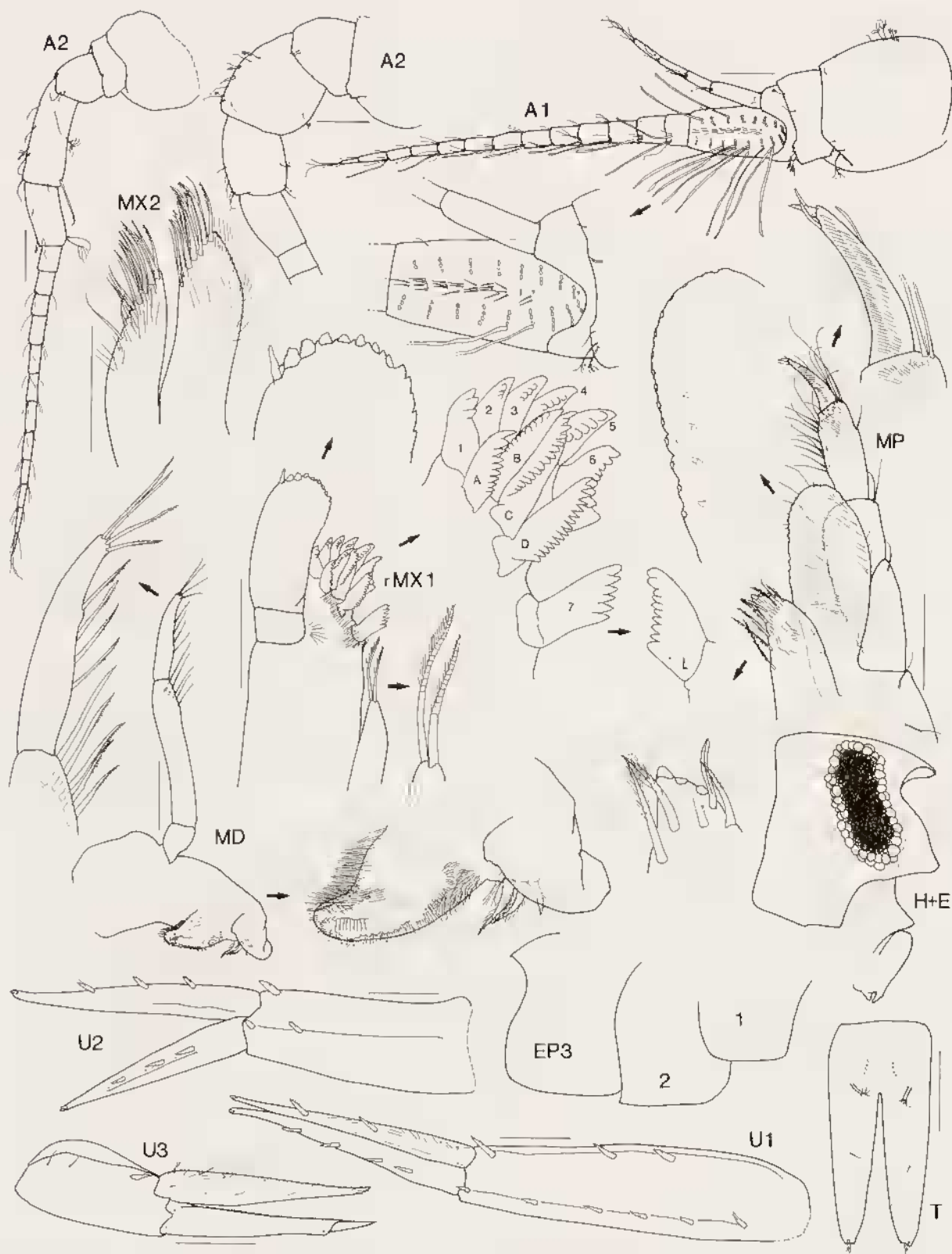


FIG. 44. — *Socarnopsis tandai* sp. nov., holotype female, 4.8 mm, AM P42252; paratype male, 4.2 mm (AM P42253); Rove, Honiara, Guadalcanal, Solomon Islands. Scales represent 0.1 mm.

multicuspidate along entire medial margin, STB-STD large, broad, multicuspidate along entire medial margin; palp large, 2-articulate, with 7 short terminal spines, without subterminal setae, flag spine present on distolateral corner, distomedial margin serrate. *Maxilla 2* : inner plate narrow, outer plate broader, inner plate 0.8 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, oblique setal row reduced with 7 plumose setae; outer plate small, subovate, without subapical notch, without apical setae or spines, medial setae vestigial, submarginal setae short, simple; palp large, 4-articulate, article 2 broad, length 2.4 times breadth, 1.6 times article 3, article 3 long, slender, length 2.4 times breadth, dactylus well developed, with 2 subterminal setae, unguis present.

Peraeonites 1 to 7 dorsally smooth. *Gnathopod 1* : weakly subchelate; coxa large, slightly shorter than coxa 2, anterior margin concave, anteroventral corner produced, rounded, posterior margin slightly convex; basis long, slender, length 4.3 times breadth, anterior margin smooth, with simple setae; ischium short, length 1.2 times breadth, anterior margin with sharp peak; merus, posterior margin with patch of short setae and a few simple setae; carpus subrectangular, long, length 2 times breadth, longer than (1.1 times) propodus, with patch of very fine setae near posterior margin; propodus large, subrectangular, length 2.3 times breadth, tapering distally, posterior margin smooth, straight, with 2 spines, palm extremely acute, margin straight, smooth, posterodistal corner with 1 medial and 1 lateral spine; dactylus complex, with large subterminal lobe and row of 28 medial spines near anterior margin. *Gnathopod 2* : minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 2.8 times breadth; carpus long, length 3 times breadth, posterior margin broadly lobate; propodus subquadrate, short, length 1.5 times breadth, palm slightly obtuse, with straight, serrate margin, posterodistal corner without spines; dactylus not reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus expanded anterodistally along carpus; merus-carpus without plumose setae in male and female; propodus with 5 slender setae and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus expanded anterodistally along carpus; merus-carpus without plumose setae in male and female; without posterodistal spur; propodus with 4 slender setae and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate (very large); basis expanded with posterior margin minutely crenate; merus expanded with rounded posterior margin; propodus with 4 slender setae along anterior margin and 2 distal spines; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis, anterior margin rounded, basis expanded posteriorly with minutely crenate posterior margin; merus slightly expanded and rounded posteroproximally, straight posterodistally with 2 setae; propodus with 7 spines long anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, anterior margin with small glands at the base of proximal setae, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus slightly expanded, convex posterior margin with 3 spines; propodus with 7 spines along anterior margin and 9 slender setae along posterior margin; dactylus short, slender.

Oostegites : from gnathopod 2 to peracopod 5. *Gills* : from gnathopod 2 to peraeopod 6, with strong horizontal plicating.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner rounded. *Epimeron 3* : posteroventral corner broadly rounded. *Urosomites* : dorsally smooth. *Uropod 1* : with long fine setae; peduncle with 5 dorsolateral, 1 apicolateral, 2 dorsomedial and 1 apicomедial spine; rami subequal in length; outer ramus with 4 dorsal spines, inner ramus with 2 dorsal spines. *Uropod 2* : without fine setae; peduncle without dorsolateral flange, with 1 dorsolateral, 1 apicolateral and 1 apicomедial spine, without plumose setae, without spines along distal margin; outer ramus slightly shorter than inner ramus; outer ramus with 3 dorsal spines, inner ramus with 3 dorsal spines; inner ramus without constriction. *Uropod 3* : with long fine setae; peduncle long, length 2.2 times breadth, without dorsolateral flange, with 1 dorsolateral and 1 apicolateral spine, without midlateral setae or spines, without distoventral spines, without plumose setae; rami lanceolate, subequal in length, outer ramus 2-articulate, article 2 short, rami without spines, slender plumose setae absent in female and male. *Telson* : longer than broad, length 2.2 times breadth, deeply cleft (68%), without dorsal spines, with sparse dorsal setae, distal margins incised slightly, with 1 marginal penicillate seta on each lobe, with 1-2 marginal simple setae on each lobe, without marginal spines.

ETYMOLOGY. — Named for Tandai Point, one of the localities at which the species is found.

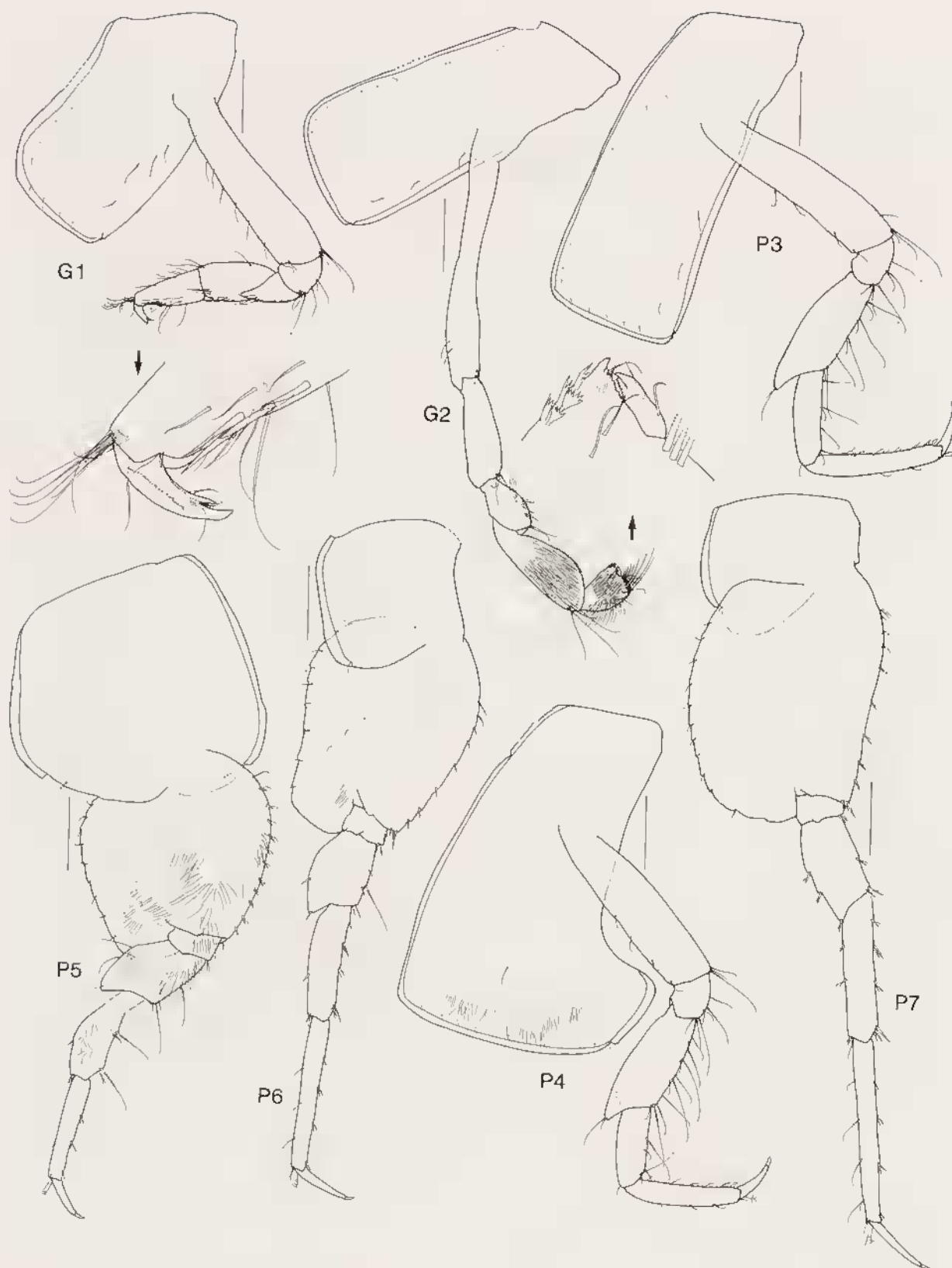


FIG. 45. — *Socarnopsis tandai* sp. nov., holotype female, 4.8 mm (AM P42252), Rove, Honiara, Guadalcanal, Solomon Islands. Scales represent 0.2 mm.

REMARKS. — *Socarnopsis taudai* is easily distinguished from *S. allecta*, *S. dissimulantia* and *S. obesa* by the sharp peak on the anterior margin of the gnathopod 1 ischium. It is very similar to *S. filicornis*, but differs in having a slightly more concave epistome, a smaller triturating area on the molar, a broader article 2 of the maxillipedal palp, an anterodistal bulge on the propodus of gnathopod 2 and a slightly rounder posteroventral corner on epimeron 3.

Socarnopsis taudai is extremely similar to *S. honiara*. There are small differences in the relative length of the flagellum and accessory flagellum of antenna 1, the breadth of articles 2 and 3 of the maxillipedal palp and the taper of the head lobe. The two species can be separated by differences in adult size, eye colour and the adult male antenna 2 which is elongate with an enlarged peduncular article 4 in *S. taudai* but subequal to that of the female in *S. honiara*. LINCOLN (1979) recognized the same close relationship, including the male antenna 2, in the North Atlantic species in *S. filicornis* (as *S. crenulatus*) and *S. erythrophthalma*.

Although we have only a small number of samples, from a limited area, it seems that the two species of *Socarnopsis* from the Solomon Islands occur in different habitats. *Socarnopsis honiara* was taken only in traps set on limestone reefs, in 3 to 5 metres depth; *S. taudai* was taken in traps set on sandy bottoms in 18 to 25 metres depth.

DISTRIBUTION. — *Socarnopsis taudai* is known from Guadalcanal, Solomon Islands, in 18 to 25 m depth.

Genus *STEPHONYX* Lowry & Stoddart, 1989

Stephonyx sp.

MATERIAL EXAMINED. — New Caledonia. CHALCAL 2 : stn DW 76, 23°40.50'S, 167°45.20'E, south of the Isle of Pines, 470 m, 30 October 1986 : 1 specimen (MNHN-Am 4428).

REMARKS. — LOWRY & STODDART are preparing a monograph on the genus *Stephonyx*. This species will be described in that report.

Genus *TRISCHIZOSTOMA* Boeck, 1861

Trischizostoma richeri sp. nov.

Figs 46-48

MATERIAL EXAMINED. — Loyalty Islands. BIOGEOCAL : stn CP 321, 21°12.0'S, 166°59.85'E, Loyalty Islands Basin, 2190-2205 m, 3 May 1987 : 1 ♀, 41 mm, ovigerous, 8 eggs (MNHN-Am 4458).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — Loyalty Islands Basin, 21°12.0'S, 166°59.85'E, 2190 to 2205 m.

DIAGNOSIS. — Maxillipedal palp 4-articulate, styliform, longer than outer plate. Gnathopod 1 : propodus oval, 0.45 times as long as broad. Telson entire, distally subacute.

DESCRIPTION. — Based on holotype female, 41 mm; male not known. *Head* : exposed, deeper than long; lateral cephalic lobe absent; rostrum large; eyes covering most of head, expanded dorsally and nearly confluent. *Antenna 1* : short, 0.16 times body; peduncular article 1 short, length 0.9 times breadth, without tooth on distomedial margin; peduncular article 2 short, 0.2 times article 1, without anterodistal projection; peduncular article 3 short, 0.2 times article 1; accessory flagellum medium length, 0.4 times primary flagellum, at least 4-articulate, article 1 long, 8.8 times article 2, forming cap partially covering callynophore; flagellum 11-articulate, with strong 2-field callynophore, with 1 long spine on article 3, calceoli absent in female.

Antenna 2 : length 1.6 times antenna 1; peduncle with weak brush setae, peduncular article 1 greatly enlarged, not covering article 2, weakly geniculate between peduncular articles 3-4, article 3 short, 0.32 times article 4; flagellum well developed, 29-articulate, without thick setal brush, calceoli absent in female.

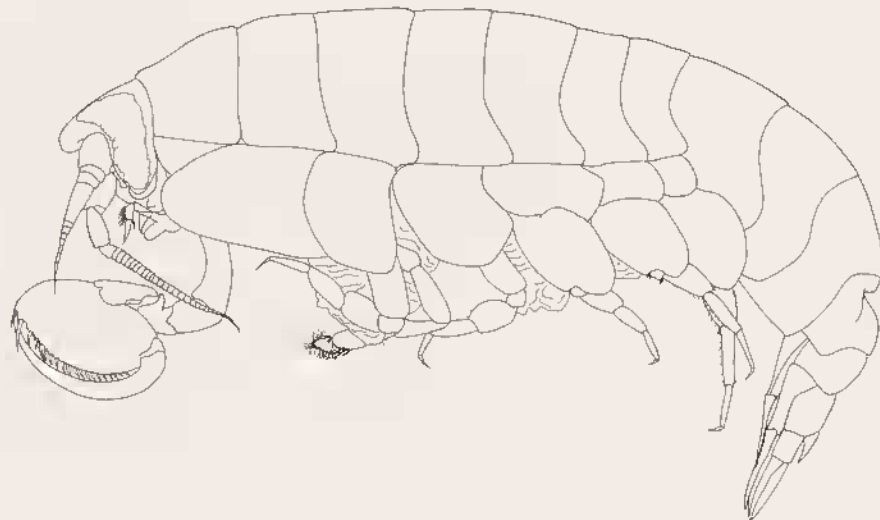


FIG. 46. — *Trischizostoma richeri* sp. nov., holotype female, 41 mm (MNHN-Am 4458), Loyalty Islands Basin.

Mouthpart bundle : conical. *Epistome* and *upper lip* : fused, sinusoidal. *Mandible* : incisors symmetrical, very small at tip of styliform projection; laciniae mobilis absent; accessory spine row absent; molar absent; mandibular palp attached proximally; article 1 short, length 0.6 times breadth; article 2 broad, length 2.8 times breadth, 1.1 times article 3, with many A2-setae, with about 25 D2-setae on distal third of posterior margin; article 3 falcate, long, length 2.9 times breadth, without proximal A3-setae, with 19 D3-setae along most of posterior margin and 1 apical E3-seta. *Maxilla 1* : inner plate narrow with 1 simple apical seta; outer plate narrow with 8 spine-teeth in modified 8/3 crown arrangement; outer row with ST1 to ST3 large, stout, without cusps, ST4 large, stout, smooth, ST5-ST7 absent; inner row with STA large, stout, displaced from STB-STD, without cusps, STB-STD short, slender, without cusps; palp small, 1-articulate, with 2 apical setae, without subterminal setae, flag spine absent, distomedial margin smooth. *Maxilla 2* : inner and outer plates narrow, inner plate 1 times length outer plate. *Maxilliped* : inner plate very large, substyliform, with 2 apical vestigial nodular spines; outer plate small, subovate, without subapical notch, apical setae, apical spines or medial spines, submarginal setae vestigial; palp large, 4-articulate, styliform, geniculate between articles 2 and 3; article 2 broad, length 2 times breadth, 1 times article 3; article 3 long, broad, length 1.9 times breadth; dactylus longest of all, slender, lanceolate with smooth anterior margin, with 2 terminal setae, unguis absent.

Peraeonites : 1 to 7 dorsally smooth. *Gnathopod 1* : subchelate; coxa vestigial; basis long, slender, length 4.9 times breadth, anterior margin smooth, without setae; ischium short, length 1.5 times breadth; merus and carpus rotated, propodus and dactylus inverted in adult, posterior margin without setae; carpus subtriangular, compressed, shorter than propodus, without denticulate patch near posterodistal margin; propodus massive, subovate, length 0.45 times breadth, margins diverging distally, posterior margin smooth, convex, without spines or setae, without denticulate patch near posterior margin, palm slightly acute, margin convex, lined with row of short, thick spines, posterodistal corner with 3 medial and 2 lateral spines; dactylus simple, without subterminal teeth or spines. *Gnathopod 2* : minutely subchelate; coxa large, larger than coxa 3, anteroventral corner rounded, ventral margin straight; ischium long, length 3.75 times breadth; carpus long, length 3.6 times breadth, posterior margin straight; propodus produced anterodistally beyond dactylus, short, length 1.7 times breadth, palm slightly acute, with straight, smooth margin, without spines; dactylus, posterior margin smooth.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly; propodus with 3 setae along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with weak posteroventral lobe, anterior margin

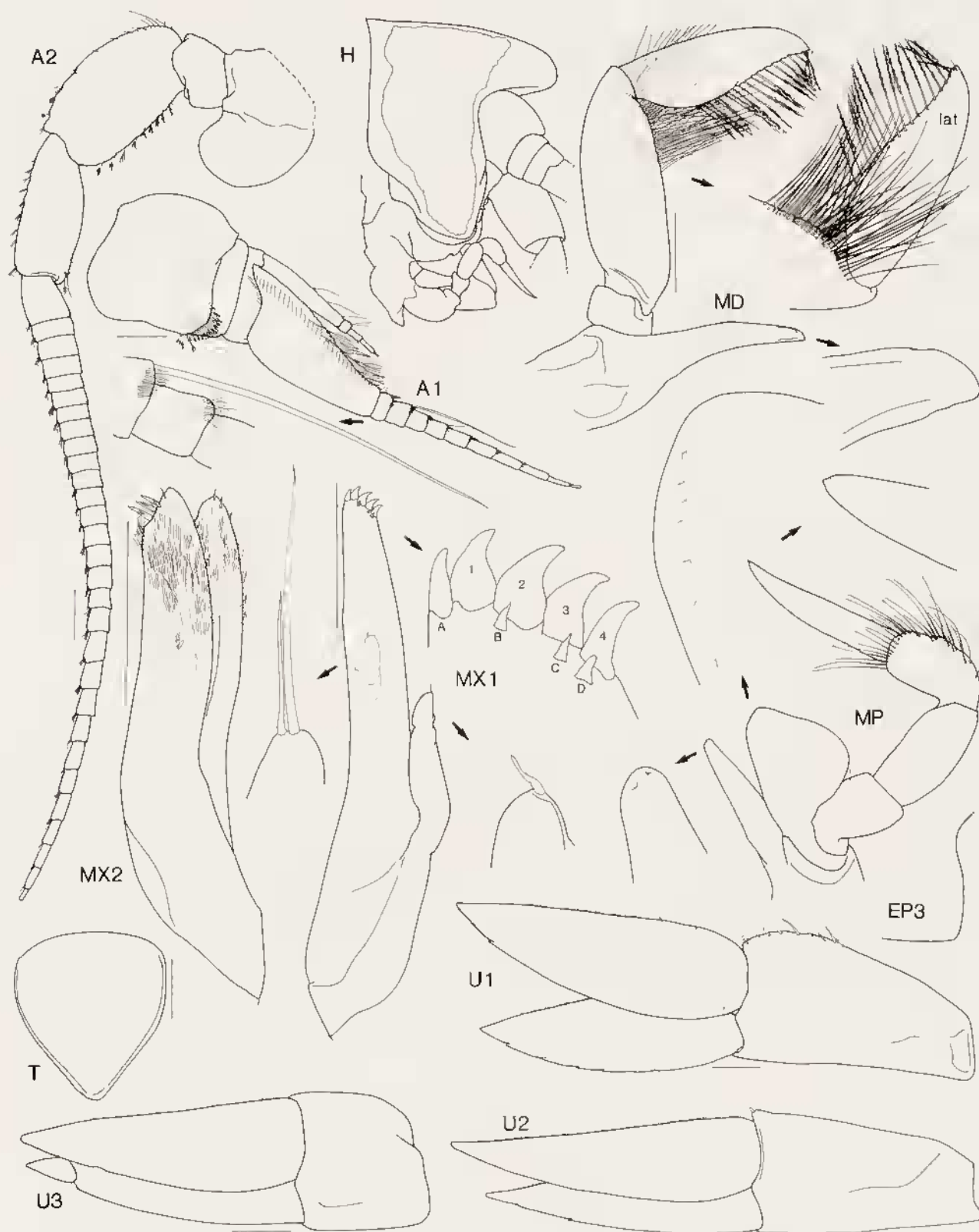


FIG. 47. — *Trischizostoma richeri* sp. nov., holotype female, 41 mm (MNHN-Am 4458), Loyalty Islands Basin. Scales represent 0.5 mm.

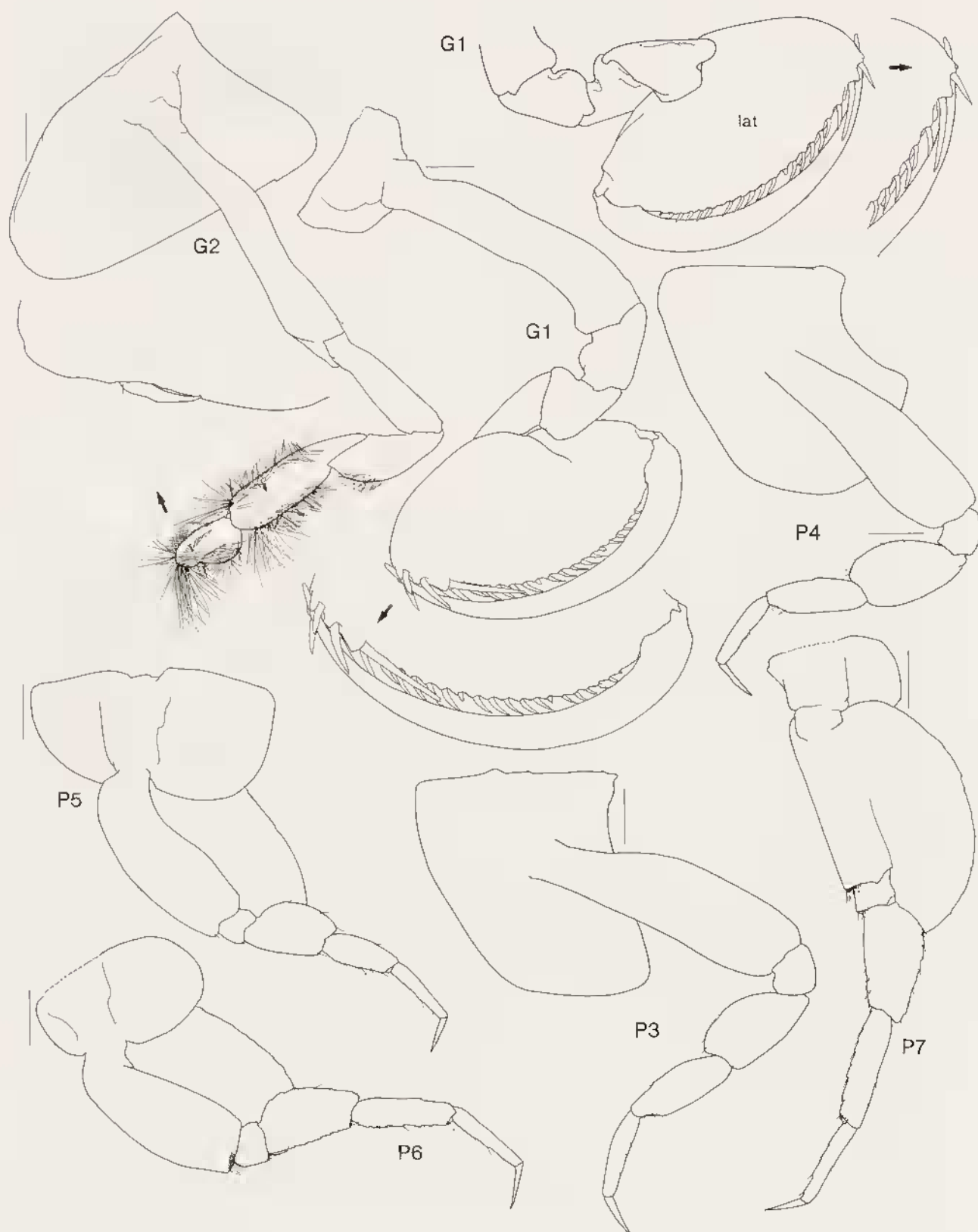


FIG. 48. — *Trischizostoma richeri* sp. nov., holotype female, 41 mm (MNHN-Am 4458), Loyalty Islands Basin. Scales represent 1.0 mm.

broadly rounded, posterior margin slightly sloping anteriorly; merus expanded anteriorly and posteriorly; propodus with 3 setae along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate; basis expanded with posterior margin smooth; merus expanded with rounded posterior margin; propodus with 3 setae along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis expanded with broad posteroventral lobe, without anteroventral lobe; merus expanded proximally, posterior margin straight, converging distally, with 4 spines; propodus with 3 setae along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral margin rounded; merus expanded proximally, posterior margin straight, converging distally, with 6 spines; propodus with 6 setae along anterior margin and 2 setae along posterior margin; dactylus short, slender.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 7, with strong horizontal pleating.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner broadly rounded. *Epimeron 3* : posteroventral corner subquadrate. *Urosomites* : urosomite 1 with anterodorsal notch. *Uropod 1* : peduncle with 9 dorsomedial and 1 apicomedial spines; outer ramus slightly shorter than inner ramus, outer ramus with 6 lateral spines; inner ramus with 2 lateral spines. *Uropod 2* : peduncle without dorsolateral flange, with 1 apicolateral spine, without spines along distal margin; outer ramus slightly shorter than inner ramus, rami without spines; inner ramus without constriction. *Uropod 3* : peduncle well developed, short, length 0.92 times breadth, without dorsolateral flange, without dorsal spines, midlateral spines or setae or distoventral spines; biramous, rami lanceolate, subequal in length, outer ramus 2-articulate, article 2 short, rami without spines. *Telson* : longer than broad, length 1.1 times breadth, entire, without dorsal setae, margins converging distally, apically subacute, without marginal penicillate or simple setae, without marginal spines.

ETYMOLOGY. — Named for Bertrand RICHER DE FORGES, carcinologist, and architect of the ORSTOM collecting program in the tropical western Pacific Ocean.

REMARKS. — *Trischizostoma richeri* is a distinctive species which appears most similar to *T. longirostre* Chevreux, 1919, and *T. macrochela* Vinogradov, 1990. In these three species the telson is entire, the maxillipedal palp is much longer than the outer plate, the propodus of gnathopod 1 is oval and much deeper than long and the palm is smooth. *Trischizostoma richeri* has a shorter rostrum than does *T. longirostre* (described more fully by CHEVREUX, 1927), the dorsodistal protuberance on the propodus of gnathopod 2 is stronger and the telson is subacute distally, not truncated. Although *T. richeri* and *T. macrochela* share the above characters they are very different. In *T. macrochela* the mandibular palp is weakly setose, the palp of maxilla 1 is completely absent, the maxillipedal palp, although much longer than the outer plate, is weakly developed and not styliform, the palm of gnathopod 1 is weakly spinose, the peraeopods are slender and the telson is rounded. *Trischizostoma richeri* differs from the other species in the Indo-west Pacific, *T. crozieri* Lowry & Stoddart, 1993, as follows : the anteroventral corner of coxa 2 is rounded; the merus is not as well developed in peraeopods 3 and 4; the basis of peraeopod 5 has a rounded posteroventral corner and the telson is entire and subtriangular.

Species of *Trischizostoma* are known as ectoparasites on fish. The host species for *T. richeri* is not known.

DISTRIBUTION. — *Trischizostoma richeri* is currently known from the Loyalty Islands Basin in 2200 m depth.

Genus *TRYPHOSELLA* Bonnier, 1893

Tryphosella ama sp. nov.

Figs 49-51

MATERIAL EXAMINED. — New Caledonia. CALSUB : stn PL 20, 22°52.7'S, 167°23'E, south of the Isle of Pines, 555-616 m, 10 March 1989 : 1 female, 9.5 mm, ovigerous (MNHN-Am 4791); 5 specimens (MNHN-Am 4791); 2 specimens (AM P42160).

TYPES. — The female, 9.5 mm (MNHN-AM 4792), is the holotype. The other specimens are paratypes.

TYPE LOCALITY. — South of the Isle of Pines, New Caledonia, 22°52.7'S, 167°23'E, 555 to 616 m.

DIAGNOSIS. — Lateral cephalic lobe large, broad, down-turned. Eyes apparently absent. Epistome : slightly produced, rounded. Maxilliped : outer plate with 3 vestigial apical spines. Gnathopod 1 : carpus slightly longer than propodus; palm acute. Epimeron 3 : posteroventral corner narrowly rounded. Urosomite 1 rounded, with rounded boss. Uropod 2 : inner ramus with moderate constriction.

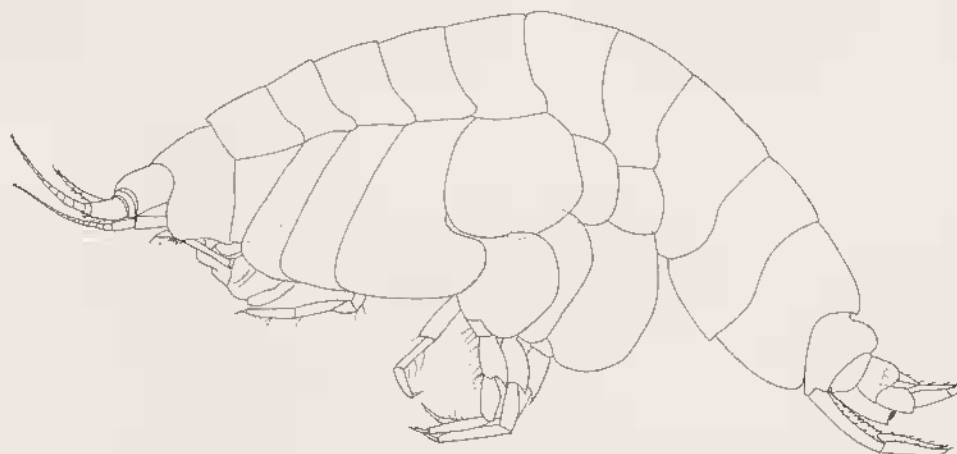


FIG. 49. — *Tryphosella ama* sp. nov., holotype female, 9.5 mm (MNHN-Am 4791), south of the Isle of Pines, New Caledonia.

DESCRIPTION. — Based on holotype female, 9.5 mm; male not known. *Head and body* : without setae. *Head* : exposed, deeper than long; lateral cephalic lobe large, broad, down-turned, distally rounded; rostrum absent; eyes apparently absent. *Antenna 1* : medium length, 0.2 times body; peduncular article 1 short, length 1.3 times breadth, without tooth on distomedial margin, posterodistal tooth or anterodistal projection; peduncular article 2 short, 0.22 times article 1, without anterodistal projection; peduncular article 3 short, 0.15 times article 1; accessory flagellum long, 0.51 times primary flagellum, 9-articulate, article 1 long, 3.1 times article 2, not forming cap; flagellum 16-articulate, with strong 2-field callynophore, with 2 small posterodistal setae, without flagellar spines, calceoli absent. *Antenna 2* : subequal in length to antenna 1; peduncle without brush setae, weakly geniculate between peduncular articles 3-4, article 3 short, 0.42 times article 4, peduncular articles 4 and 5 not enlarged; flagellum well developed, 16-articulate, calceoli absent.

Mouthpart bundle : subquadrate. *Epistome and upper lip* : separate; epistome slightly produced, rounded; upper lip slightly produced, rounded. *Mandible* : incisors symmetrical, large, with strongly convex margins; left lacinia mobilis present, a stemmed distally serrate blade; accessory spine row without distal setal tuft, left row with 4, right with 3 short, slender, "hushy" spines, with 3 "whip-like" intermediate setae; molar proximally setose, distally triturating; mandibular palp attached midway; article 1 short, length 1.2 times breadth; article 2 slender, length 6.1 times breadth, 2.3 times article 3, with 16 submarginal posterodistal A2-setae, without B2-setae or D2-setae; article 3 falcate, long, length 3.4 times breadth, with 1 proximal A3-seta, without B3-setae, with 16 D3-setae along most of posterior margin and 2 apical E3-setae. *Maxilla 1* : inner plate narrow with 2 simple apical setae, outer seta with denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 large, stout, multicuspidate, ST2 and ST3 weakly cuspidate, ST4 large, stout, 4-cuspidate, ST5 large, stout, 6-cuspidate, ST6 large, stout, multicuspidate, ST7 slightly displaced from ST6, large, broad, with convex multicuspidate medial margin; inner row with STA large, very broad, slightly displaced from STB-STD, multicuspidate along entire medial margin, STB-STD large, broad, multicuspidate along entire medial margin; palp large, 2-articulate, with 7 short terminal spines, with 1-2 subterminal setae, flag spine present on distolateral corner, distomedial margin smooth. *Maxilla 2* : inner and outer plates narrow, inner plate 0.8 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, with 2 distal spines on lateral

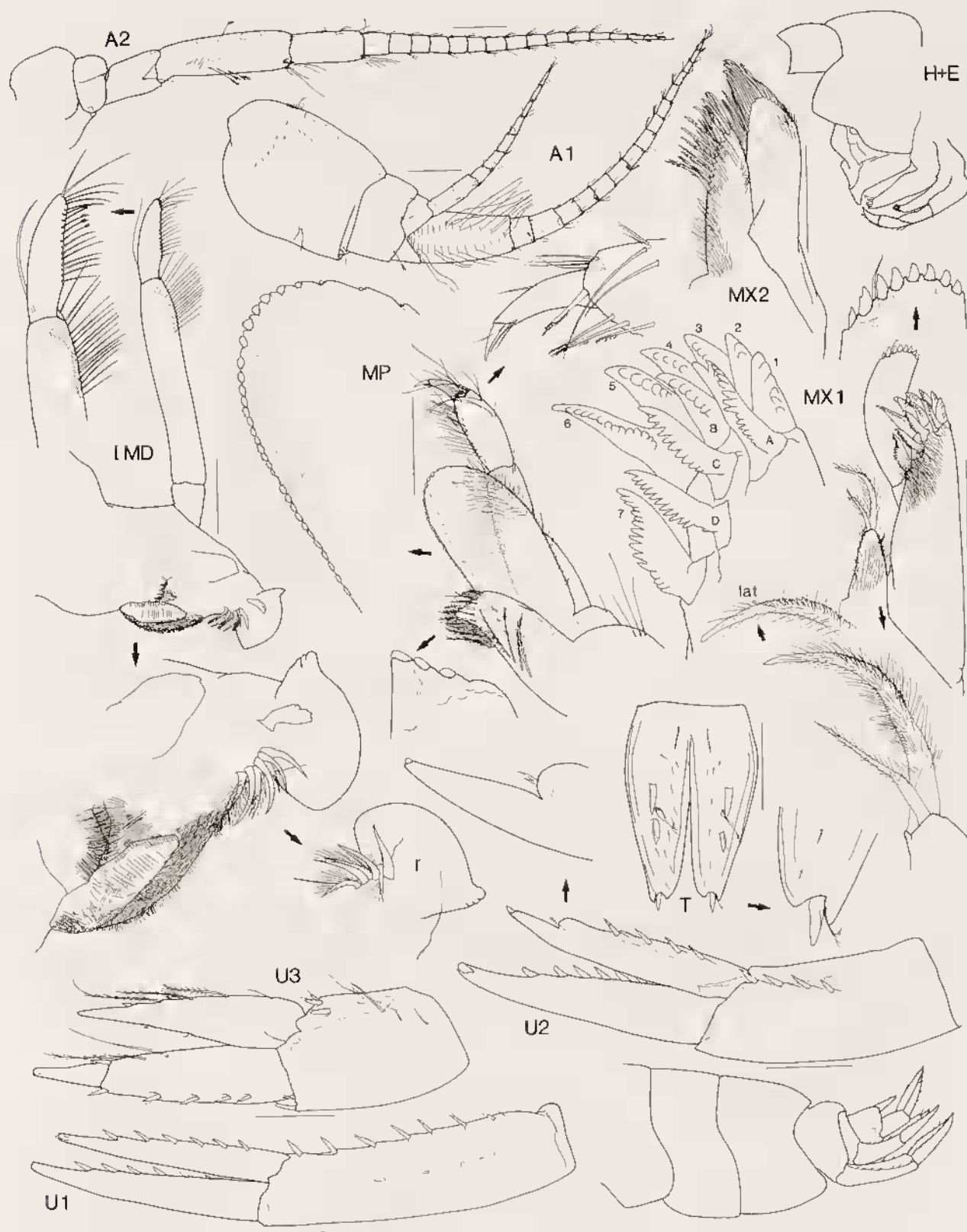


FIG. 50. — *Tryphosella ama* sp. nov., holotype female, 9.5 mm (MNHN-Am 4791), south of the Isle of Pines, New Caledonia. Scales represent 0.2 mm.

face near inner margin, oblique setal row strong with 17 plumose setae; outer plate medium size, subovate, without subapical notch or apical setae, with 3 vestigial apical spines, medial spines present, small, submarginal setae short, simple; palp large, 4-articulate; article 2 slender, length 3.2 times breadth, 1.6 times article 3; article 3 long, slender, length 2.3 times breadth; dactylus well developed, with 3 subterminal setae, unguis present.

Peraeonites 1 to 7 dorsally smooth. *Gnathopod 1*: subchelate; coxa large, slightly shorter than coxa 2, tapering distally, anterior margin concave, anteroventral corner produced, rounded, posterior margin distally angled

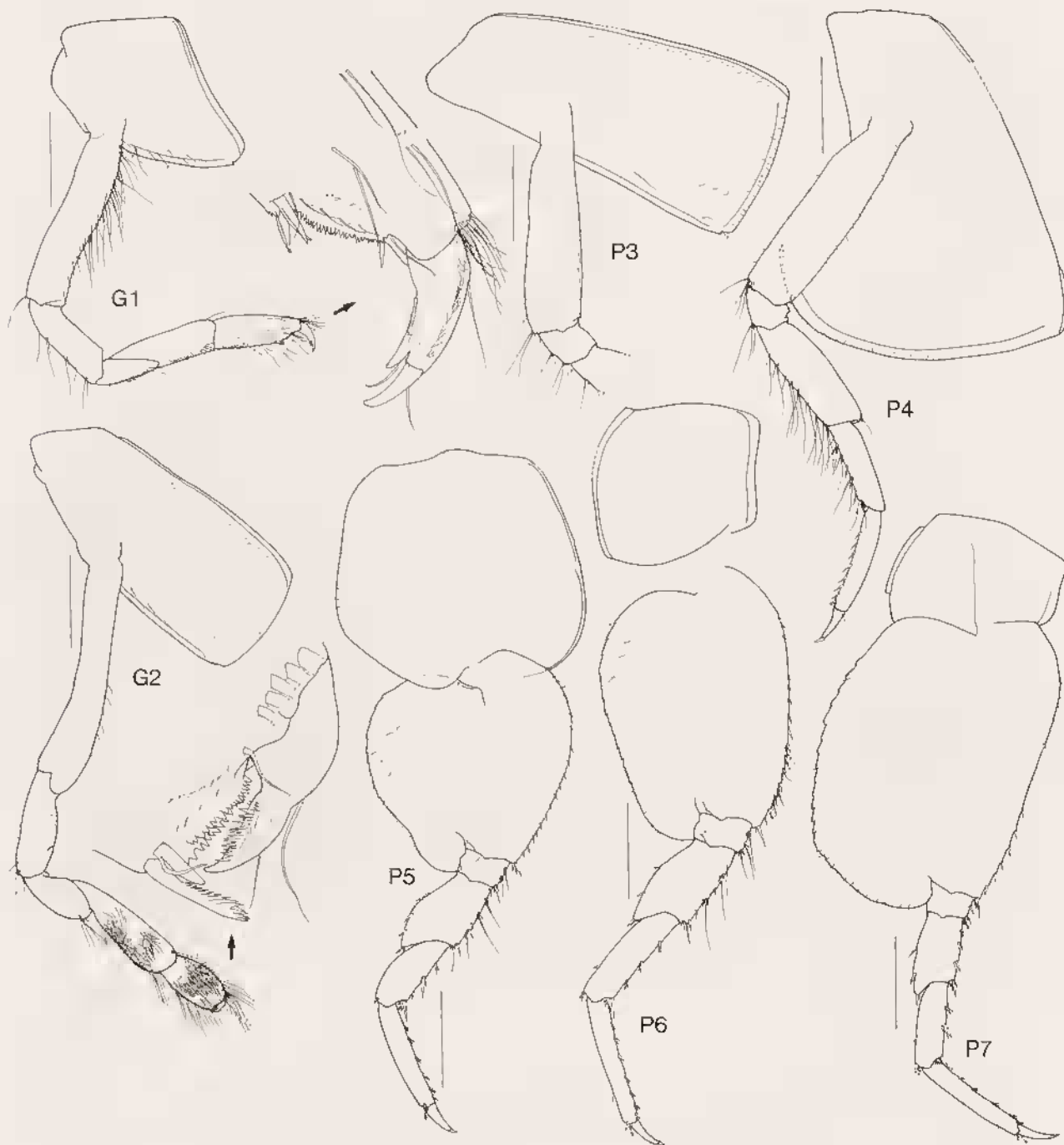


FIG. 51. — *Tryphosella ama* sp. nov., holotype female, 9.5 mm (MNHN-Am 4791), south of the Isle of Pines, New Caledonia. Scales represent 0.5 mm.

towards anterior margin; basis long, slender, length 4.9 times breadth, anterior margin smooth, with simple setae; ischium long, length 3 times breadth, anterior margin smooth; merus, posterior margin with patch of short setae; carpus subrectangular, long, length 3.3 times breadth, longer than (1.2 times) propodus, with patch of very fine setae near posterior margin; propodus large, subrectangular, length 2.7 times breadth, margins subparallel, posterior margin smooth, straight, with setae, with very fine setae near posterior margin, palm acute, margin straight, serrate, posterodistal corner with 1 medial and 1 lateral spines; dactylus complex, with large subterminal tooth and row of many medial spines near anterior margin. *Gnathopod 2* : minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 2.9 times breadth; carpus long, length 3.3 times breadth, posterior margin broadly lobate; propodus subquadrate, short, length 1.6 times breadth, posterior margin without strong distal spines, palm transverse, with straight, serrate margin, posterodistal corner with 1 medial spine; dactylus reaching corner of palm, posterior margin serrate.

Peraeopod 3 : coxa large; merus, propodus and dactylus unknown. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus not expanded anteriorly, merus-carpus without plumose setae; propodus with 7 spines and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa bilobate, posterior lobe slightly produced ventrally; basis expanded with posterior margin minutely crenate; merus slightly expanded posteriorly; propodus with 10 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 6* : coxa small, not lobate posteriorly; basis expanded posteriorly with minutely crenate posterior margin, without anteroventral lobe; merus slightly expanded and rounded posteroproximally, straight posterodistally with 3 setae; propodus with 11 spines and 2 distal spines along anterior margin; dactylus short, slender. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus anterior and posterior margins subparallel; propodus with 8 spines and 2 distal spines along anterior margin and 2 distal spines along posterior margin; dactylus short, slender.

Oostegites : from gnathopod 2 to peraeopod 5. *Gills* : from gnathopod 2 to peraeopod 7, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 1* : anteroventral corner narrowly rounded. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : urosomite 1 with rounded boss, without lateral flange; urosomite 3 without small dorsolateral spine. *Uropod 1* : without fine setae; peduncle with 6 dorsolateral, 1 apicolateral, 6 dorsomedial and 1 apicomедial spines; rami subequal in length, outer ramus with 6 dorsal spines; inner ramus with 6 dorsal spines. *Uropod 2* : without fine setae; peduncle without dorsolateral flange, with 8 dorsolateral, 1 apicolateral, 3 dorsomedial and 1 apicomедial spines, without plumose setae, without spines along distal margin; rami subequal in length, outer ramus with 7 dorsal spines; inner ramus with 4 dorsal spines, with moderate constriction. *Uropod 3* : peduncle well developed, short, length 1.6 times breadth, without dorsolateral flange, with 2 apicolateral and 1 dorsal spines, without midlateral spines or setae, with 3 distoventral spines, with plumose setae; biramous, rami lanceolate, inner ramus reduced, about 0.8 times outer ramus, outer ramus 2-articulate, article 2 short, article 1 with 5 lateral and 1 medial spines; inner ramus with 4 medial and 2 lateral spines, plumose setae present in female. *Telson* : longer than broad, length 1.5 times breadth, deeply cleft (81%), with 2 dorsal spines on each lobe, with sparse dorsal setae, distal margins incised, with 1 marginal penicillate setae on each lobe, without simple marginal setae, with 1 marginal spine on each lobe.

ETYMOLOGY. — Named for Ama Island, the southern-most island in the Isle of Pines group.

REMARKS. — Because of the size of the genus the following comparison is restricted geographically. *Tryphosella ama* is atypical of the genus in having a long ischium on gnathopod 1 and a constricted inner ramus on uropod 2. We have other Indo-west Pacific species under study which also have these characters and we cannot yet assess their importance at the generic level. *Tryphosella ama* and *T. oupi* both have narrowly rounded posteroventral corners on epimeron 3. *Tryphosella ama* differs from *T. oupi* in having a more slender antenna 1 with more articles in the accessory and primary flagella, a shorter article 3 on the mandibular palp, 3 or 4 vestigial apical spines on the outer plate of the maxilliped and a more slender maxillipedal palp, a more acute palm on gnathopod 1 and large dorsal spines on the telson.

DISTRIBUTION. — *Tryphosella ama* is known only from southern New Caledonia, in 555 to 616 m depth.

Tryphosella oupi sp. nov.

Figs 52-53

MATERIAL EXAMINED. — New Caledonia. BIOCAL : stn CP 75, 22°18.65'S, 167°23.30'E, north of the Isle of Pines, 825-860 m, 4 September 1985 : 1 ♂, 5.5 mm (MNHN-Am 4381).

TYPES. — The unique specimen is the holotype.

TYPE LOCALITY. — North of the Isle of Pines, New Caledonia, 22°18.65'S, 167°23.30'E, 825 to 860 m.

DIAGNOSIS. — Lateral cephalic lobe subacute. Eyes apparently absent. Epistome : slightly produced, rounded. Maxilliped : outer plate with 2 apical spines. Gnathopod 1 : carpus length 1 times propodus; palm slightly acute. Epimeron 3 : posteroventral corner narrowly rounded. Urosomite 1 rounded, with anterodorsal notch.

DESCRIPTION. — Based on holotype male, 5.5 mm; female unknown. *Head* : exposed, deeper than long; lateral cephalic lobe large, broad, subacute; rostrum absent; eyes apparently absent. *Antenna 1* : peduncular article 1 short, length 1 times breadth, without tooth on distomedial margin, posterodistal tooth or anterodistal projection; peduncular article 2 short, 0.19 times article 1, without anterodistal projection; peduncular article 3 long, 0.23 times article 1; accessory flagellum long, 0.52 times primary flagellum, 4-articulate, article 1 long, 3.1 times article 2, not forming cap; flagellum male 8-articulate, with strong 2-field calynophore without posterodistal setae or spines, without flagellar spines, calceoli absent. *Antenna 2* : subequal in length to antenna 1; peduncle without brush setae in male, weakly geniculate between peduncular articles 3-4, article 3 short, 0.49 times article 4, peduncular articles 4 and 5 not enlarged; flagellum well developed, 11-articulate, calceoli present.

Mouthpart bundle : subquadrate. *Epistome* and *upper lip* : separate; epistome slightly produced, rounded; upper lip not produced, straight. *Mandible* : incisors symmetrical, large, with strongly convex margins; left lacinia mobilis present, a stemmed distally serrate blade; accessory spine row without distal setal tuft, left and right rows each with 3 long, slender, "bushy" spines, with 4 "whip-like" intermediate setae; molar proximally setose, distally triturating; mandibular palp attached midway; article 1 short, length 1.1 times breadth; article 2 slender, length 4.2 times breadth, 1.3 times article 3, with 8 A2-setae, without B2-setae or D2-setae; article 3 falcate, long, length 3.9 times breadth, with 1 proximal A3-seta, without B3-setae, with 12 D3-setae along most of posterior margin and 2 apical E3-setae. *Maxilla 1* : inner plate narrow with 2 plumose apical setae, outer seta with denticulate row; outer plate with 11 spine-teeth in 6/5 arrangement; outer row with ST1 to ST3 large, stout, weakly cuspidate, ST4 large, stout, 3-cuspidate, ST5 large, stout, 5-cuspidate, ST6 large, stout, multicuspidate, ST7 slightly displaced from ST6, large, broad, with convex multicuspidate medial margin; inner row with STA large, very broad, slightly displaced from STB-STD, 6-cuspidate, STB large, broad, 6-cuspidate, STC large, broad, 7-cuspidate, STD large, broad, multicuspidate along medial margin; palp large, 2-articulate, with 4 long terminal spines, with 1 subterminal seta, flag spine present on distolateral corner, distomedial margin smooth. *Maxilla 2* : inner and outer plates narrow, inner plate 0.9 times length outer plate. *Maxilliped* : inner plate large, subrectangular, with 3 apical nodular spines, with 2 distal spines on lateral face near inner margin, oblique setal row strong with 9 plumose setae; outer plate small, subovate, without subapical notch or apical setae, with 2 apical spines, medial spines present, small, submarginal setae short, simple; palp large, 4-articulate; article 2 very broad, length 2 times breadth, 1.4 times article 3; article 3 short, broad, length 1.75 times breadth; dactylus well developed, with 3 subterminal setae, unguis present.

Peraeonites 1 to 7 dorsally smooth. *Gnathopod 1* : subchelate; coxa large, slightly shorter than coxa 2, tapering distally, anterior margin straight, posterior margin distally angled towards anterior margin; basis long, slender, length 3.2 times breadth, anterior margin smooth, with simple setae; ischium short, length 1 times breadth, anterior margin smooth; merus, posterior margin with patch of short setae; carpus subrectangular, short, length 1.8 times breadth and 1 times propodus, without patch of very fine setae near posterior margin; propodus without very fine setae near posterior margin; propodus large, subrectangular, length 2 times breadth, margins subparallel, posterior margin smooth, straight, with setae, without denticulate patch near posterior margin, palm

slightly acute, margin sinusoidal, serrate, posterodistal corner with 1 medial and 1 lateral spines; dactylus simple, with subterminal tooth. *Gnathopod 2*: minutely subchelate; coxa large, subequal in size to coxa 3; ischium long, length 2.7 times breadth; carpus long, length 3.7 times breadth, posterior margin straight; propodus

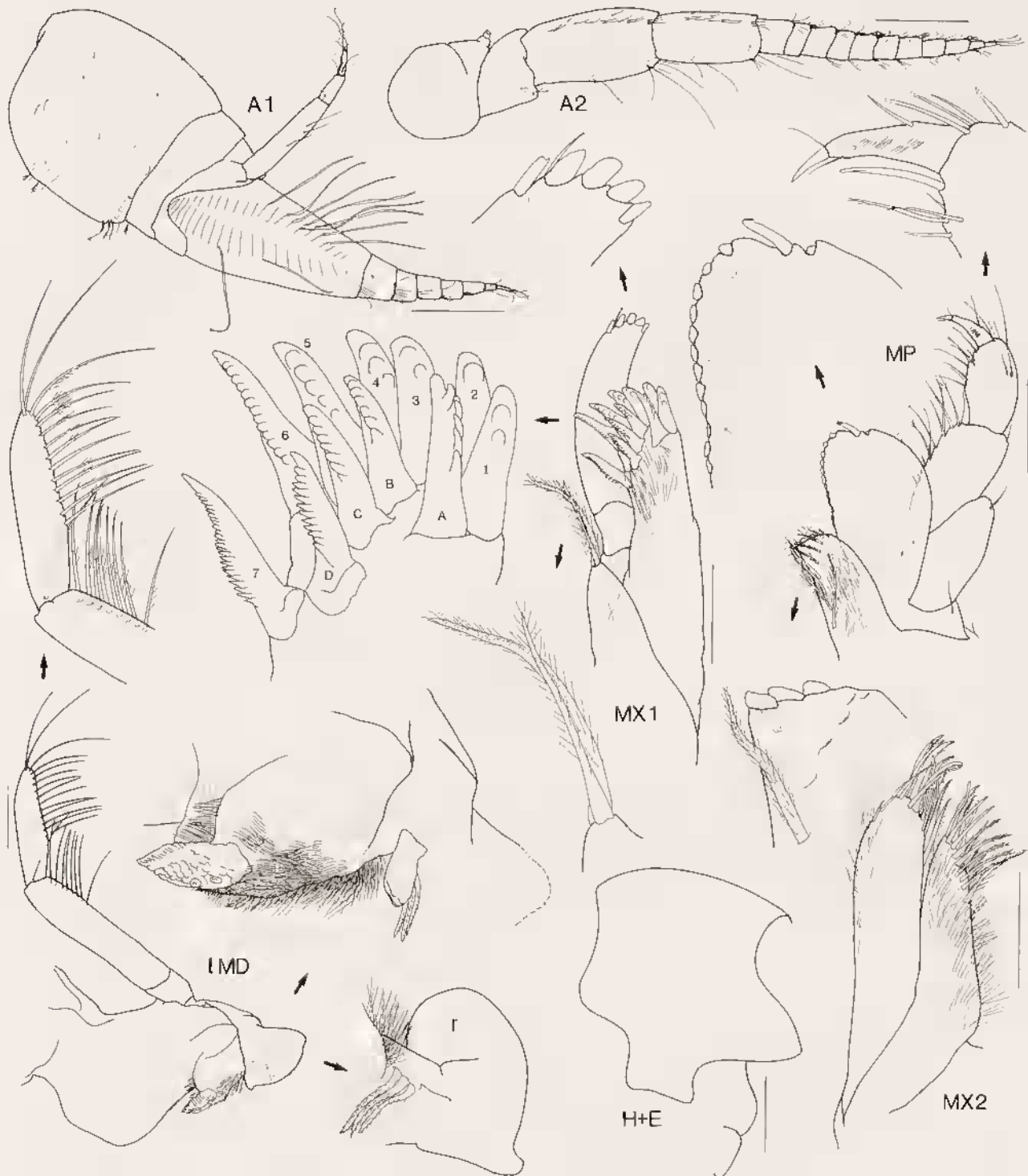


FIG. 52. — *Tryphosella oupi* sp. nov., holotype male, 5.5 mm (MNHN-Am 4381), north of the Isle of Pines, New Caledonia. Scales for A1, 2, H+E represent 0.2 mm, remainder represent 0.1 mm.

subrectangular, short, length 1.7 times breadth, palm slightly obtuse, with straight, serrate margin, posterodistal corner with 1 medial spine; dactylus reaching corner of palm, posterior margin smooth proximally with serrate tip.

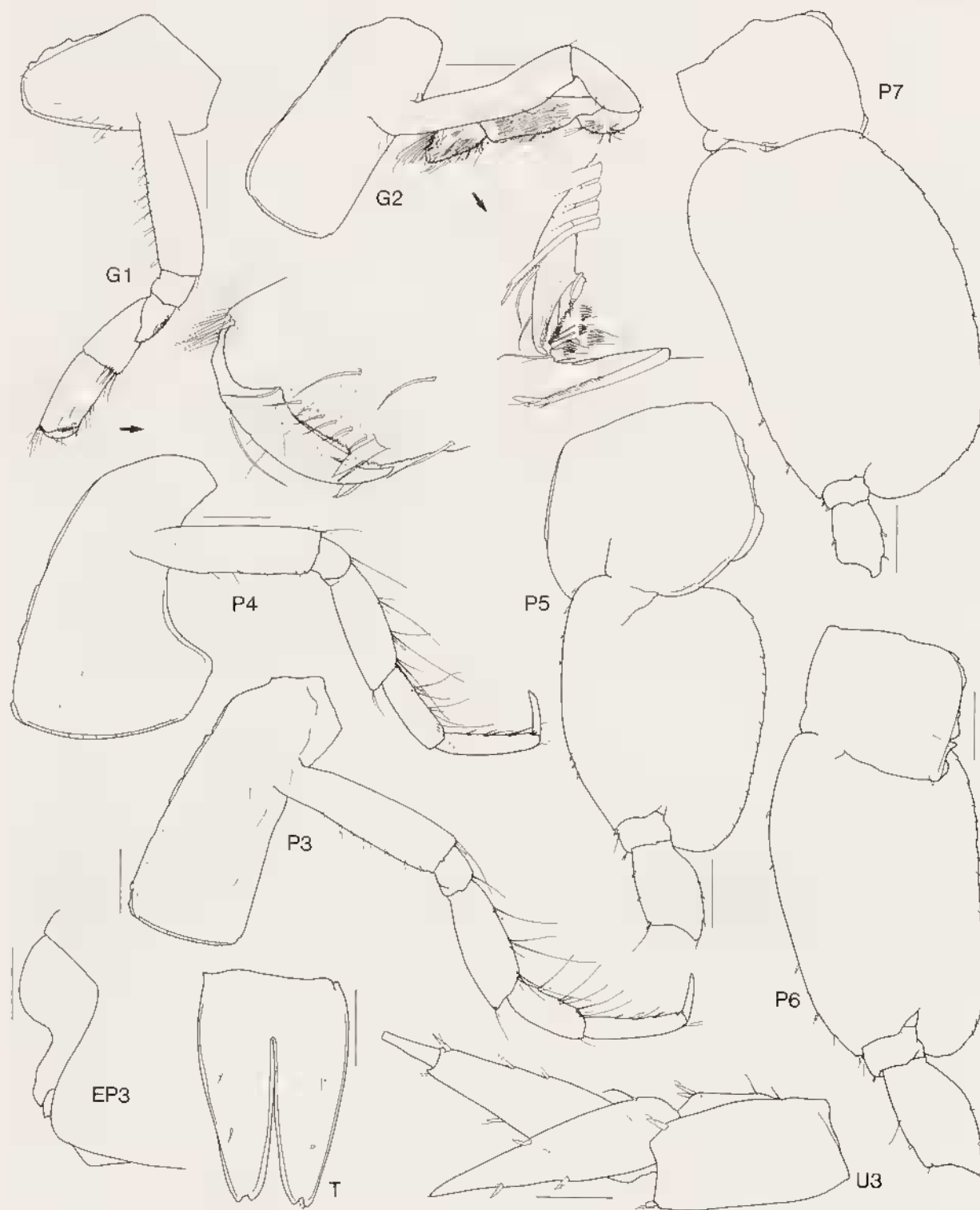


FIG. 53. — *Tryphosella oupi* sp. nov., holotype male, 5.5 mm (MNHN-Am 4381), north of the Isle of Pines, New Caledonia. Scales for U3, T represent 0.1 mm, remainder represent 0.2 mm.

Peraeopod 3 : coxa large; merus weakly expanded anteriorly, merus-carpus without plumose setae; propodus with 3 spines and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 4* : coxa deeper than wide, with large posteroventral lobe, anterior margin slightly rounded, posterior margin slightly sloping anteriorly; merus weakly expanded anteriorly, merus-carpus without plumose setae; propodus with 3 spines and 2 distal spines along posterior margin; dactylus short, slender. *Peraeopod 5* : coxa equilobate; basis expanded with posterior margin minutely crenate; merus slightly expanded posteriorly; propodus and dactylus unknown. *Peraeopod 6* : coxa small, not lobate posteriorly; basis expanded posteriorly with minutely crenate posterior margin, without anteroventral lobe; merus slightly expanded posteriorly with 3 spines; propodus and dactylus unknown. *Peraeopod 7* : basis expanded posteriorly, posterior margin slightly rounded, minutely crenate, posteroventral corner rounded, posteroventral margin rounded; merus slightly expanded posterodistally with 2 spines; propodus and dactylus unknown.

Gills : from gnathopod 2 to peraeopod 7, not pleated.

Pleonites 1 to 3 dorsally smooth. *Epimeron 3* : posteroventral corner narrowly rounded. *Urosomites* : urosomite 1 with rounded boss, without lateral flange; urosomite 3 without small dorsolateral spine. *Uropod 1* : unknown. *Uropod 2* : unknown. *Uropod 3* : peduncle well developed, short, length 1.9 times breadth, without dorsolateral flange, with 1 apicolateral and 2 apicomедial spines, without midlateral spines or setae, with 2 distoventral spines, without plumose setae; rami lanceolate, inner ramus reduced, about 0.8 times outer ramus, outer ramus 2-articulate, article 2 short, article 1 with 2 lateral and 1 medial spines; inner ramus with 1 lateral and 2 medial spines, plumose setae possibly present (broken). *Telson* : longer than broad, length 1.5 times breadth, deeply cleft (71%), without dorsal spines, with 1 dorsal seta on each lobe, distal margins incised, without marginal penicillate or simple setae, with 1 marginal spine on each lobe.

ETYMOLOGY. — Named for the Passe de Oupi through the reefs north of the Isle of Pines.

REMARKS. — For differences from *T. ama* see remarks under that species.

DISTRIBUTION. — *Tryphosella oupi* is known only from southern New Caledonia, in 825 to 860 m depth.

Genus WALDECKIA Chevreux, 1906

Waldeckia sp. 1

MATERIAL EXAMINED. — **Austral Isles.** SMCB, R.V. *Marara*, J.K. LOWRY and J.M. POUPIN coll.: stn FRP-1, 21°47.7'S, 154°42'W, north-east side of Maria Island, between Isle du Nordet and Isle Centrale, rubble and coarse sand samples from lagoon, 1 m, 7 August 1991 : 6 specimens (AM P42161). — Stn FRP-39, 23°19.0'S, 149°29.3'W, off Tubuai, baited trap, 485 m, 12-13 August 1991 : 1 ♀ (AM P42163). — Stn FRP-63, 27°36.55'S, 144°18.65'W, Ha'uerei Bay, Rapa, baited trap on reef with large patches of brown alga, 3 m, 17-18 August 1991 : 1 juvenile (AM P42164).

REMARKS. — LOWRY & STODDART are preparing a monograph on the genus *Waldeckia*. This species will be described in that report.

Waldeckia sp. 2

MATERIAL EXAMINED. — **Chesterfield Islands.** CORAIL 2 : stn DW 4, 20°52.30'S, 161°36.56'E, Fairway Reef, between New Caledonia and Chesterfield Islands, *Halimeda* flakes, 64 m, 18 July-6 August, 1988 : 1 ♀, ovigerous (MNHN-Am 4436). — Stn DW 35, 19°21.65'S, 158°21.5'E, Chesterfield Lagoon, sand, 52 m, 18 July-6 August, 1988 : 1 ♀ (MNHN-Am 4447).

REMARKS. — LOWRY & STODDART are preparing a monograph on the genus *Waldeckia*. This species will be described in that report.

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REFERENCES

- ANDRES, H.G., 1981. — Lysianassidae aus dem Abyssal des Roten Meeres. Bearbeitung der Köderfänge von FS "Sonne" - MESEDA I. (1977) (Crustacea : Amphipoda : Gammaridea). *Senckenberg. biol.*, **61** (5/6) : 429-443.
- ARNAUD, P.M., 1974. — Contribution à la bionomie marine benthique des régions antarctiques et subantarctiques. *Téthys*, **6** : 467-653.
- AUSTIN, W.C., 1985. — *An Annotated Checklist of Marine Invertebrates in the Cold Temperate Northeast Pacific*. Koyatan Marine Laboratory, Cowichan Bay, 3 vols.
- BARNARD, J.L., 1958. — Index to the families, genera, and species of the gammaridean Amphipoda (Crustacea). *Allan Hancock Publs, Occas. Pap.*, **19** : 1-145.
- BARNARD, J.L., 1961. — Gammaridean Amphipoda from depths of 400 to 6000 meters. *Galathea Rep.*, **5** : 23-128.
- BARNARD, J.L., 1962. — South Atlantic abyssal amphipods collected by R.V. *Vema*. Abyssal Crustacea. *Vema Res. Ser.*, **1** : 1-78.
- BARNARD, J.L., 1964a. — Some bathyal Pacific Amphipoda collected by the U.S.S. Albatross. *Pacif. Sci.*, **18** (3) : 315-335.
- BARNARD, J.L., 1964b. — Marine Amphipoda of Bahia de San Quintin, Baja California. *Pacif. Nat.*, **4** (3) : 55-139.
- BARNARD, J.L., 1966. — Submarine canyons of southern California. Part V. Systematics : Amphipoda. *Allan Hancock Pacif. Exped.*, **27** (5) : 1-166.
- BARNARD, J.L., 1967. — Bathyal and abyssal gammaridean Amphipoda of Cedros Trench, Baja California. *U.S. nat. Mus. Bull.*, **260** : 1-205.
- BARNARD, J.L., 1969. — The families and genera of marine gammaridean Amphipoda. *U.S. nat. Mus. Bull.*, **271** : 1-535.
- BARNARD, J.L., 1970. — Sublittoral Gammaridea (Amphipoda) of the Hawaiian Islands. *Smithson. Contr. Zool.*, **34** : 1-286.
- BARNARD, J.L. & INGRAM, C., 1990. — Lysianassoid Amphipoda (Crustacea) from deep-sea vents. *Smithson. Contr. Zool.*, **499** : 1-80.
- BARNARD, J.L. & KARAMAN, G.S., 1991. — The families and genera of marine gammaridean Amphipoda. *Rec. Aust. Mus., Suppl.*, **13** : 1-866.
- BARNARD, K.H., 1916. — Contributions to the crustacean fauna of South Africa. 5. -The Amphipoda. *Ann. S. Afr. Mus.*, **15** : 105-302, pls 26-28.
- BARNARD, K.H., 1925. — Contributions to the crustacean fauna of South Africa. No. 8. Further additions to the list of Amphipoda. *Ann. S. Afr. Mus.*, **20** : 319-380, pl. 34.
- BARNARD, K.H., 1930. — Crustacea, Part XI. - Amphipoda. *Br. Antarct. Terra Nova Exped. 1910-1913, Nat. Hist. Rep. Zool.*, **8** : 307-454.
- BARNARD, K.H., 1932. — Amphipoda. *Discovery Rep.*, **5** : 1-326, pl. 1.
- BATE, S., 1858. — On some new genera and species of Crustacea Amphipoda. *Ann. Mag. nat. Hist.*, Ser. 3, **1** : 361-362.

- BELLAN-SANTINI, D., 1972. — Invertébrés marins des XIIème et XVème expéditions antarctiques Françaises en Terre Adélie. 10. - Amphipodes gammariens. *Téthys*, Suppl., **4** : 157-238.
- BELLAN-SANTINI, D. & LEDOYER, M., 1974. — Gammariens (Crustacea-Amphipoda) des îles Kerguelen et Crozet. *Téthys*, Suppl., **5** : 635-707.
- BELLAN-SANTINI, D. & LEDOYER, M., 1987. — Gammariens (Crustacea, Amphipoda) des îles Marion et Prince Edward. Campagne MD 08 du M.S. "Marion Dufresne" en 1976. *Boll. Mns. civ. Stor. nat. Verona*, **13** : 349-435.
- BIRSTEIN, J.A. & VINOGRADOV, M.E., 1955. — Pelagic gammarids (Amphipoda-Gammaridea) of the Kurile-Kamchatka Trench. *Trudy Inst. Okeanol.*, **12** : 210-287 (in Russian).
- BIRSTEIN, J.A. & VINOGRADOV, M.E., 1958. — [Pelagic gammarids (Amphipoda, Gammaridea) from the north-western part of the Pacific Ocean.] *Trudy Inst. Okeanol.*, **27** : 219-257 (in Russian).
- BIRSTEIN, J.A. & M.E. VINOGRADOV, 1960. — [Pelagic gammarids from the tropical Pacific Ocean.] *Trudy Inst. Okeanol.*, **34** : 165-241 (in Russian).
- BIRSTEIN, J.A. & M.E. VINOGRADOV, 1962. — [Pelagic Gammaridea (Amphipoda, Gammaridea) collected by the Soviet Antarctic expedition on the M/V "Ob", south of 40°S]. *Akad. Nauk SSSR, Issledovaniya Fauny Morei*, **1** (10) : 36-57 (in Russian).
- BIRSTEIN, J.A. & M.E. VINOGRADOV, 1964. — [Pelagic gammarideans from the Indian Ocean]. *Trudy Inst. Okeanol.*, **65** : 152-195 (in Russian).
- BOECK, A., 1861. — Bemaerkninger angaaende de ved de norske kyster forekommende Amphipoder. *Forh. skand. Naturf. Møte*, **8** : 631-677.
- BOECK, A., 1871. — Crustacea Amphipoda borealia et arctica. Forhandlingar i Videnskabs-Selskabet i Christiana. Aar, 1870 : 83-280, i-viii [index].
- BONNIER, J., 1893. — Les amphipodes du Boulonnais. *Bull. scient. Fr. Belg.*, **24** : 161-207, pls 5-8.
- CHEVREUX, E., 1900. — Amphipodes provenant des campagnes de l'*Hirondelle* (1885-1888). *Résult. Camp. scient. Prince Albert I Monaco*, **16** : i-iv, 1-195.
- CHEVREUX, E., 1903. — Campagnes scientifiques de S.A. le Prince Albert Ier de Monaco. Note préliminaire sur les amphipodes de la famille des Lysianassidae recueillis par la *Princesse-Alice* dans les eaux profondes de l'Atlantique et de la Méditerranée. *Bull. Soc. zool. Fr.*, **28** : 81-97.
- CHEVREUX, E., 1905a. — Description d'un amphipode (*Cyphocaris Richardi* nov. sp.) provenant des pêches au filet à grande ouverture de la dernière campagne du yacht *Princesse-Alice* (1904). *Bull. Mns. océanogr. Monaco*, **24** : 1-5.
- CHEVREUX, E., 1905b. — Description d'un amphipode (*Katins obesus*, nov. gen. et sp.), suivie d'une liste des amphipodes de la tribu des *Gammarina* ramenés par le filet à grande ouverture pendant la dernière campagne de la *Princesse-Alice* en 1904. *Bull. Mns. océanogr. Monaco*, **35** : 1-7.
- CHEVREUX, E., 1906. — Crustacés amphipodes. *Expéd. Antarct. franç. (1903-1905)*, *Sci. Nat. Doc. scient.* : 1-100.
- CHEVREUX, E., 1911. — Campagnes de la *Métila*. Les amphipodes d'Algérie et de Tunisie. *Mem. Soc. zool. Fr.*, **23** : 145-285, pls 6-20.
- CHEVREUX, E., 1919. — Note préliminaire sur les amphipodes recueillis par les expéditions du *Travailleur* et du *Talisman* (1880-1883). *Bull. Mns. natn. Hist. nat., Paris*, **1919** (7) : 574-580.
- CHEVREUX, E., 1927. — Crustacés Amphipodes. *Expéditions scientifiques du "Travailleur" et du "Talisman" pendant les années 1880-1883. Malacostracés (suite)*, **9** : 41-152, pls 1-14.
- CHEVREUX, E., 1935. — Amphipodes provenant des campagnes du Prince Albert Ier de Monaco. *Résult. Camp. scient. Prince Albert I Monaco*, **90** : 1-214.
- CHEVREUX, E. & FAGE, L., 1925. — Amphipodes. *Faune de France*, **9** : 1-488.
- COSTA, A., 1853. — Relazione sulla memoria del Dottor Achille Costa, di ricerche su' crostacei anfipodi del regno di Napoli. *Rc. Accad. Sci. fis. mat., Naples*, **2** : 167-178.
- COSTELLO, M.J., HOLMES, J.M.C., McGRATH, D. & MYERS, A.A., 1989. — A review and catalogue of the Amphipoda (Crustacea) in Ireland. *Irish Fish. Invest., Ser. B (Marine)*, **33** : 1-70.
- DAHL, E., 1954. — A collection of Amphipoda from the Ross Sea. *Ark. Zool., Uppsala*, **7** (19) : 281-293.

- DAHL, E., 1959. — Amphipoda from depths exceeding 6000 meters. *Galathea Rep.*, **1** : 211-241.
- DALLWITZ, M.J. & PAINE, T.A. 1986. — User's guide to the DELTA system. A general system for processing taxonomic descriptions. *CSIRO Div. Entom. Rep.*, **13** : 1-106.
- DE BROYER, C., 1984. — Evolution du complexe *Orchomene* Boeck (Amphipoda, Lysianassidae). *Ann. Soc. roy. Zool. Belgique*, **114** (suppl. 1) : 197-198.
- DE BROYER, C., 1985. — Amphipodes lysianassoides nécrophages des îles Kerguelen (Crustacea) : 1. *Orchomenella guillei* n. sp. *Bull. Mus. natn. Hist. nat., Paris*, Ser. 4, 7, Sect. A, (1) : 205-217.
- DELLA VALLE, A., 1893. — Gammarini del Golfo di Napoli. *Fauna Flora Golf. Neapel*, **20** : 1-948, pls 1-61.
- DIVIACCO, G., 1984. — Considerazioni sul lisianasside *Socarnes filicornis* (Heller) (Crustacea, Amphipoda). *Boll. Mus. civ. Stor. nat. Verona*, **10** : 539-540.
- DIVIACCO, G., & RUFFO, S., 1989. — Family Lysianassidae. In : S. RUFFO (ed.) The Amphipoda of the Mediterranean. Part 2. *Mem. Inst. océanogr. Monaco*, **13** : 469-576.
- GOES, A., 1866. — Crustacea Amphipoda maris Spetsbergiam alluentis, cum speciebus aliis Arcticis enumerat. *Ofvers. K. VetenskAkad. Forh. Stockh.*, (for 1865), **22** : 517-536, pls 36-41.
- GRIFFITHS, C.L., 1974. — The Amphipoda of southern Africa. Part 4. The Gammaridea and Caprellidea of the Cape Province east of Cape Agulhas. *Ann. S. Afr. Mus.*, **65** (9) : 251-336.
- GRIFFITHS, C.L., 1975. — The Amphipoda of southern Africa. Part 5. The Gammaridea and Caprellidea of the Cape Province west of Cape Agulhas. *Ann. S. Afr. Mus.*, **67** (5) : 91-181.
- GURJANOVA, E., 1934. — Neue Formen von Amphipoden des Karischen Meeres. *Zool. Anz.*, **108** : 122-130.
- GURJANOVA, E.F., 1962. — Amphipoda of the northern part of the Pacific Ocean (Amphipoda-Gammaridea). *Akad. Nauk SSSR, Opređ. Faune SSSR*, **74** : 1-440.
- HASWELL, W.A., 1879. — On Australian Amphipoda. *Proc. Linn. Soc. N.S.W.*, **4** (3) : 245-279, pls 7-12.
- HELLER, C., 1866. — Beiträge zur Näheren Kenntniss der Amphipoden des Adriatischen Meeres. *Denks. Akad. Wissensch., Wien*, **26** (2) : 1-62, pls 1-4.
- HURLEY, D.E., 1963. — Amphipoda of the family Lysianassidae from the west coast of North and Central America. *Allan Hancock Publs, Occas. Pap.*, **25** : 1-160.
- IMBACH, M.C., 1967. — Gammaridean Amphipoda from the South China Sea. *Naga Rep.*, **4** (1) : 39-167.
- INTES, A., 1978. — Pêche profonde aux casiers en Nouvelle-Calédonie et îles adjacentes. Essais préliminaires. *ORSTOM Rap. scient. tech.* (2) : 1-10, figs 1-10.
- JARRETT, N.E. & BOUSFIELD, E.L., 1982. — Studies on the amphipod family Lysianassidae in the northeastern Pacific region. *Hippomedon* and related genera : Systematics and distributional ecology. *Natn. Mus. nat. Sci. Ottawa, Publ. Biol. Oceanogr.*, **10** : 103-128.
- KRAPP-SCHICKEL, G., 1974. — Camill Hellers Sammlung adriatischer Amphipoden - 1866 und heute. *Annln naturh. Mus. Wien*, **78** : 319-379.
- KRØYER, H.N., 1838. — Gronlands amfipoder beskrevne af Henrik Krøyer. (Som Tellaeg; Beskrivelse af nogle andre gronlandske Draebsdyr, og Optaelling af Draebsdyrklassens hidtil bekjendte gronlandske Arter, i Forbindelse med nogle zoologisk-geografiske...boreale Kruistaccer). *K. danske Vidensk. Selsk. naturvidensk. math. Afsand.*, **4**, 7 : 229-326, pls 1-4.
- KRØYER, H.N., 1846. — Karcinologiske Bidrag (Fortsættelse). *Naturh. Tidsskr.*, Ser. 2, **2** : 1-88; 115-123.
- LEDOYER, M., 1967. — Amphipodes gammariens des herbiers de phanérogames marines de la région de Tuléar (République Malgache). Etude systématique et écologique. *Annls Fac. Sci. Univ. Madagascar*, **5** : 121-170.
- LEDOYER, M., 1972. — Amphipodes gammariens vivant dans les alvéoles des constrictions organogènes récifales intertidales de la région de Tuléar (Madagascar). Etude systématique et écologique. *Téthys, Suppl.*, **3** : 165-285.
- LEDOYER, M., 1973. — Etude des amphipodes gammariens des biotopes de substrats sableux et sablo-vaseux de la région de Tuléar et de Nosy-bé (Madagascar). *Téthys, Suppl.*, **5** : 51-94.
- LEDOYER, M., 1977. — Contribution à l'étude de l'écologie de la faune vagile profonde de la Méditerranée nord occidentale. 1. Les gammariens (Crustacea, Amphipoda). *Boll. Mus. Civ. Stor. Nat., Verona*, **4** : 321-421.

- LEDOYER, M., 1978. — Contribution à l'étude des amphipodes gammariens profonds de Madagascar (Crustacea). *Téthys*, **8** (4) : 365-382.
- LEDOYER, M., 1979. — Les gammariens de la pente externe du grand récif de Tuléar (Madagascar) (Crustacea Amphipoda). *Mem. Mus. civ. Stor. nat. Verona*, 2nd Ser. Sez. Sci. Vita, **2** : 1-150.
- LEDOYER, M., 1984. — Les gammariens (Crustacea, Amphipoda) des herbiers de phanérogames marines de Nouvelle Calédonie (région de Nouméa). *Mém. Mus. natn. Hist. nat.*, Sér. A, Zool., **129** : 1-113.
- LEDOYER, M., 1986. — Crustacés Amphipodes Gammariens. Familles des Haustoriidae à Vitjazianidae. *Faune Madagascar*, **59** (2) : 599-1112.
- LICHTENSTEIN, H., 1822. pp. 31-37. In : M.W. MANDT, Observation in historiam naturalem et anatomiam comparatam in itinere Groenlandico factae. Dissertatio inauguralis quam consensu et auctoritate gratiosi micorum ordinis in universitate literaria berolinensi ut summi in medicina et chirurgia honores rite sibi concedantur die XXII. M. Julii A MDCCCXXII H.L.Q.S., publice defendet autor martinus Guilelmus Mandt Beyenburgensis. (opponentibus : J.th. v. Brandt Med. Cd. J Ollenroth Med. Cd., E. Gabler Med Cd.; Forinis Brueschekianis), antecedent pp. + 1-40.
- LINCOLN, R.J., 1979. — British Marine Amphipoda : Gammaridea. British Museum (Natural History), London. i-v + 1-658 pp.
- LOWRY, J.K., 1982. — The status of the gammaridean Amphipoda collected by the Australasian Antarctic Expedition 1911-1914. *Crustaceana*, **42** : 319-320.
- LOWRY, J.K., 1984. — Systematics of the pachynid group of lysianassoid Amphipoda (Crustacea). *Rec. Aust. Mus.*, **36** (2) : 51-105.
- LOWRY, J.K. & BULLOCK, S., 1976. — Catalogue of the marine gammaridean Amphipoda of the Southern Ocean. *Bull. R. Soc. N.Z.*, **16** : 1-187.
- LOWRY, J.K. & STODDART, H.E., 1989. — *Stephonyx*, a new, widespread genus of lysianassoid Amphipoda. *Zool. Scripta*, **18** (4) : 519-525.
- LOWRY, J.K. & STODDART, H.E., 1990. — The Wandinidae, a new Indo-Pacific family of lysianassoid Amphipoda (Crustacea). *Rec. Aust. Mus.*, **42** (2) : 159-171.
- LOWRY, J.K. & STODDART, H.E., 1992. — A revision of the genus *Ichnopus* (Crustacea : Amphipoda : Lysianassoidea : Uristidae). *Rec. Aust. Mus.*, **44** (2) : 185-245.
- LOWRY, J.K. & STODDART, H.E., 1993. — Crustacea Amphipoda : lysianassoids from Philippine and Indonesian waters. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Volume 10. *Mém. Mus. natn. Hist. nat.*, **156** : 55-109.
- MYERS, A.A., 1985. — Shallow-water, coral reef and mangrove Amphipoda (Gammaridea) of Fiji. *Rec. Aust. Mus.*, Suppl. **5** : 1-144.
- MYERS, A.A., 1986. — Amphipoda from the South Pacific : Tonga. *Rec. Aust. Mus.*, **38** (5) : 271-289.
- MYERS, A.A., 1989. — Amphipoda from the South Pacific : the Society Islands. *Rec. Aust. Mus.*, **41** (1) : 63-82.
- MYERS, A.A., 1990. — Amphipoda from the South Pacific : the Cook Islands. *Rec. Aust. Mus.*, **42** (2) : 149-157.
- NICHOLLS, G.E., 1938. — Amphipoda, Gammaridea. *Australasian Antarctic Expedition 1911-14. Scient. Repts*, Ser. C, **2** (4) : 1-145.
- PALERUD, R. & VADER, W., 1991. — Marine Amphipoda Gammaridea in north-east Atlantic and Norwegian Arctic. *Tromsø, Naturvitensk.*, **68** : 1-97.
- PIRLOT, J.M., 1933. — Les amphipodes de l'expédition du Siboga. Deuxième partie : Les amphipodes gammarides, II. - Les amphipodes de la mer profonde. 1 (Lysianassidae, Stegocephalidae, Stenothoidae, Pleustidae, Lepechinellidae). *Siboga-Exped., Monogr.*, **33c** : 115-167.
- POUPIN, J., 1991. — Mission aux îles Australes du 5 au 23 août 1991. *Rapports de Mission du navire Marara*. Service mixte de Contrôle biologique des Années, Montlhéry, France, 17 pp. mimeogr.
- REN, X. & HUANG, L., 1991. — [Studies on Gammaridea and Caprellidea (Crustacea : Amphipoda) from the northwest waters off the Antarctic Peninsula.] *Stud. Mar. Sin.*, **32** : 187-323 (in Chinese and English).
- REPELIN, R., 1978. — Les amphipodes pélagiques du Pacifique Occidental et Central. *Trav. Doc. ORSTOM*, (86) : 1-381.

- RICHER DE FORGES, B., 1990. — Les Campagnes d'exploration de la faune bathyale dans la zone économique de la Nouvelle-Calédonie. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Volume 6. *Mém. Mus. natn. Hist. nat.*, (A), **145** : 9-54.
- RICHER DE FORGES, B., 1993. — La Campagne MUSORSTOM 7 dans la zone économique des Iles Wallis et Futuna. Compte rendu et liste des stations. In : A. CROSNIER (ed.), Résultats des Campagnes MUSORSTOM, Volume 10. *Mém. Mus. natn. Hist. nat.*, **156** : 9-25.
- ROBERTSON, D., 1892. — A second contribution towards a catalogue of the Amphipoda and Isopoda of the Firth of Clyde and west of Scotland. *Trans. nat. Hist. Soc. Glasgow*, **3** : 199-223.
- RUFFO, S., 1949. — Amphipodes (II). *Résult. Voyage S.Y. Belgica. Rapp. scient., Zool.* : 1-58.
- SANDERSON, J.M., 1973. — A catalogue of the Amphipoda (Crustacea) in the collection of the late D.H. Reid, now in the Royal Scottish Museum, Edinburgh. *R. Scott. Mus. Inf. Sef. nat. Hist.*, **1** : 1-79.
- SARS, G.O., 1890. — An Account of the Crustacea of Norway, with Short Descriptions and Figures of all the Species. Vol. I. Amphipoda. Parts 1-3. Alb. Cammermeyer, Christiana. 1-68, pls 1-24.
- SARS, G.O., 1891. — An Account of the Crustacea of Norway, with Short Descriptions and Figures of all the Species. Vol. I. Amphipoda. Parts 4-9. Alb. Cammermeyer, Christiana : 69-212.
- SCHELLENBERG, A., 1926a. — Die Gammariden der deutschen Südpolar-Expedition 1901-1903. *Dt. Südpol.-Exped., Zool.*, **10**, **18** : 235-414.
- SCHELLENBERG, A., 1926b. — Amphipoda 3 : Die Gammariden der Deutschen Tiefsee-Expedition. *Wiss. Ergebn. dt. Tiefsee-Exped. "Valdivia" 1898-1899*, **23** (5) : 193-243, pl. 5.
- SCHELLENBERG, A., 1931. — Gammariden und Caprelliden des Magellangebietes, Sudgeorgiens und der Westantarktis. *Further zool. Results Swed. Antarct. Exped.*, **2** (6) : 1-290, pl. 1.
- SCHELLENBERG, A., 1938. — Litorale Amphipoden des tropischen Pazifiks nach Sammlungen von Prof. Bock (Stockholm), Prof. Dahl (Berlin) und Prof. Pietschmann (Wein). *K. Svenska Vetensk. Akad. Handl.*, Ser. 3, **16** (6) : 1-105.
- SCHELLENBERG, A., 1955. — Amphipoda. *Rep. Swed. deep sea Exped., Zool.*, **14** : 181-195.
- SHOEMAKER, C.R., 1934. — Three new amphipods. Reports on the collections obtained by the First Johnson-Smithsonian Deep-Sea Expedition to the Puerto Rican Deep. *Smithson. Misc. Coll.*, **91** (2) : 1-6.
- SHULENBERGER, E. & BARNARD, J.L., 1976. — Amphipods from an abyssal trap set in the North Pacific gyre. *Crustaceana*, **31** (3) : 241-258.
- SMITH, S.I., 1882. — In : SCUDDER, S.H. Nomenclator zoologicus. An Alphabetical list of all generic Names that have been employed by Naturalists for recent and fossil Animals from the earliest times to the Close of the year 1879. I. Supplemental List. *Bull. U.S. nat. Mus.*, **19** : i-xxi, 1-376.
- STEBBING, T.R.R., 1888. — Report on the Amphipoda collected by H.M.S. Challenger during the years 1873-1876. *Rep. scient. Results Challenger, Zool.*, **29** : 1-1737, pls 1-210.
- STEBBING, T.R.R., 1906. — Amphipoda. I. Gammaridea. *Das Tierreich*, **21** : 1-806.
- STEPHENSEN, K., 1925. — Crustacea Malacostraca. VI : (Amphipoda, II). *Dan. Ingolf-Exped.*, **3** (9) : 101-178.
- STEPHENSEN, K., 1929. — Amphipoda. *Tierwelt N.- u. Ostee*, **14** (Xf) : 1-188.
- STEPHENSEN, K., 1931. — On *Lepidepecreella cymba* (Goes), a gammarid amphipod from Spitzbergen. *Ark. Zool., Uppsala*, **22A** (9) : 1-6.
- STEPHENSEN, K., 1935. — The Amphipoda of N. Norway and Spitsbergen with adjacent waters. *Tromsø Mus. Skr.*, **3** (1) : 1-140.
- THURSTON, M., 1979. — Scavenging abyssal amphipods from the north-east Atlantic Ocean. *Mar. Biol.*, **51** (1) : 55-68.
- THURSTON, M., 1990. — Abyssal necrophagous amphipods (Crustacea : Amphipoda) in the northeast and tropical Atlantic Ocean. *Prog. Oceanogr.*, **24** : 257-274.
- THURSTON, M.H. & ALLEN, E., 1969. — Type material of the families Lysianassidae, Stegocephalidae, Ampeliscidae and Haustoriidae (Crustacea : Amphipoda) in the collections of the British Museum (Natural History). *Bull. Br. Mus. nat. Hist.*, (Zool.), **17** : 347-388.

- VINOGRADOV, G.M., 1990. — [Pelagic amphipods (Amphipoda, Crustacea) from the south-eastern Pacific.] *Trudy Inst. Okeanol.*, **124** : 27-104 (in Russian).
- VINOGRADOV, G.M., 1993. — [Amphipods (Crustacea) from hydrothermal vents of the eastern Pacific.] *Zool. Zh.*, **72** (2) : 40-53 (in Russian).
- VINOGRADOV, M.E. & VINOGRADOV, G.M., 1991. — [Scavenging amphipods from a bottom-trap set on the Nasca underwater mountain ridge]. *Zool. Zh.*, **70** (6) : 32-38 (in Russian).
- WALKER, A.O., 1903. — Report on the Isopoda and the Amphipoda collected by Mr. George Murray, F.R.S., during the cruise of the 'Oceana' in November 1898. *Ann. Mag. nat. Hist.*, Ser. 7, **12** : 223-233, pls 18, 19.
- WALKER, A.O., 1904. — Report on the Amphipoda collected by professor Herdman, at Ceylon, in 1902. *Ceylon Pearl Oyster Fish. 1904 Suppl. Rep.*, **17** : 229-300, pls 1-8.
- WALKER, A.O. & SCOTT, A., 1903. — Crustacea; Malacostraca. II. Decapod and Sessile-eyed Crustaceans from Abd-el-Kuri : Macrura and Edriophthalma. pp 216-232, pls 14 A, B. *In* : H.O. FORBES, (ed.), The Natural History of Sokotra and Abd-el-Kuri. Special Bulletin, Liverpool Museum, Liverpool.
- WHITE, A., 1847. — Descriptions of new or little-known Crustacea in the collection at the British Museum. *Proc. zool. Soc. London*, **15** : 118-126.
- WILSON, R.R.Jr., SMITH, K.L.Jr. & ROSENBLATT, R.H., 1985. — Megafauna associated with bathyal seamounts in the central North Pacific ocean. *Deep-Sea Res.*, **32** (10) : 1243-1254.